

SPECTRUM[®]

Enterprise Configuration Manager User's Guide

CABLETRON
SYSTEMS

The Complete Networking Solution™

Summary of Changes

Version	Date	Reason/Rational	Nature of Changes
5.0 beta 3 preliminary version	12/8/97	For differences between ECM 4.0 rev 3 and ECM 5.0, see New Features section.	5.0 beta 3 preliminary version

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Preface

This preface describes the purpose this guide, ECM user prerequisites, new and changed ECM features, how the guide is organized, and how to get additional information on SPECTRUM products.

Product Description

Welcome to the Enterprise Configuration Manager User's Guide. This guide shows you how to use Enterprise Configuration Manager (ECM) to manage the configuration of network devices from a central location.

Who Should Read This Guide

This guide is intended for administrators and users who are responsible for network configurations.

Prerequisites for Users

Prior to using Enterprise Configuration Manager, administrators should be familiar with:

- SPECTRUM and SPECTRUM administration, as outlined in the **SPECTRUM Administrator's Reference**.
- SpectroGRAPH user interface and with the user functions outlined in the **SPECTRUM Operator's Reference**.

Administrators should also have significant experience in configuring the devices on the network.

Guide's Organization

The user's guide is organized as follows.

Part	Description
Chapter 1	Gives an overview of the configuration management process.
Chapter 2	Shows how to access ECM and work with ECM windows.
Chapter 3	Shows how to create and use templates.
Chapter 4	Describes how to create configurations.
Chapter 5	Describes how to load a configuration to one or more devices.
Chapter 6	Shows how to verify the configuration of one or more devices.
Chapter 7	Describes how to import and export configurations and templates.
Chapter 8	Describes how to use the Scheduler to perform automatic loads, captures, or verifications.
Chapter 9	Illustrates how to use other SPECTRUM applications with ECM.
Chapter 10	Shows example ways of using ECM.
Appendix A	Describes installation procedures.
Appendix B	Shows how to customize the ECM environment.
Appendix C	Shows how to run ECM operations from the command line.
Appendix D	Shows you how to customize an IP address for Cisco router operations.



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spectrum-techdocs@ctron.com



New Features

This section describes new ECM features for Spectrum 5.0.

New Feature Summary

The following features have been added to ECM 5.0:

- **Ability to create whole device configurations**

In ECM 5.0, configurations can include all components of the device.

In ECM 4.0, for a complex device like a hub/chassis, the user had to maintain separate configurations for each component of the device. In ECM 5.0, the same configuration can be used to include attributes from all components of the device. This also makes disaster recovery a little easier.

- **Multi Device Capture with Multi Load and Multi Verify**

In ECM 5.0, it is possible to simultaneously capture a configuration from multiple devices of the same type.

Each captured configuration becomes device specific (specific to the device it was captured from). In ECM 5.0, it is also possible to load/verify these device specific configurations to their respective devices (one-to-one mapping).

- **Right Mouse Button functionality**

In ECM 5.0, pressing the right mouse button brings up a pop-up menu, providing a short cut to the product features. This also eliminates the accidental closing of ECM windows.

- **Long Model Name support**

In ECM 5.0, the status bar at the bottom of the application's window displays the full name of the device component for the attribute which is currently selected. You can scroll the text field horizontally to view the entire name if it is longer than the display area.

- **Year 2000 compliance**

ECM 5.0 is Year 2000 compliant.

- **Filtering of attributes based on flags**

In ECM 5.0, access to attributes has been made flag-selectable. You can define flags for insertable attributes. You can choose any combination of readable/writable and internal/external flag settings.

- **Access to all attributes
(including *READ only* as well as *WRITE only*)**

In ECM 5.0, by selecting appropriate flags for insertable attributes, you have access to all the attributes, including *READ only* and *WRITE only*. Access to *WRITE only* attributes is very useful (and needed) in performing some actions on the device (for example, a firmware download).

Core logic has been added so that ECM does not attempt to capture/verify a *WRITE-only* attribute or load a *READ-only* attribute.

- **Ability to copy and paste attributes in the configuration**

In ECM 5.0, it is possible to have an attribute more than once in a configuration. Some SNMP operations require setting different values of a particular attribute at different stages of an operation. (The way RowStatus works in newer SNMPv2 MIB tables is an example.)

- **Wildcarding of attributes**

In ECM 5.0, while editing a configuration, you can now wildcard a list (for example, a table) attribute for a specific component as well as wildcard a specific attribute for similar components. Two new buttons, **Wild Attr.** and **Wild Comp.** have been added for this capability.

The **Wild Attr.** function can be used to wildcard a list attribute. This function is equivalent to changing an attribute's instance id to '?' — if a wildcarded list attribute is in a configuration, the load and verify operations apply/compare 'all' instances of this attribute for the specific component.

The **Wild Comp.** function can be used to wildcard a component attribute. If a wildcarded component attribute is in a configuration, the load and verify operations will apply/compare this attribute for all similar (same model type) components.

- **Ordering of Attributes**

In ECM 5.0, attributes are loaded in the order specified by editing the configuration or template. Each attribute is loaded by itself before the next one is addressed.

New Feature Detail

The following sections describe in more detail (than the preceding new feature summary) four of the enhancements made to ECM in Spectrum 5.0.

Configuring an Entire Device

New 

In ECM 4.0, if a device had subcomponents, you had to configure each component one at a time. With ECM 5.0, you can capture, load, and verify a configuration for an entire device with all its subcomponents without having to do it separately for each subcomponent.

The capture, load, and verify procedures are the same as before except that the attributes for the entire device (with all its subcomponents) now are displayed in the Insertable Attributes list when you select the upper-level device. This means you can create a configuration either for the entire device at once or only the part(s) within the device that you select.

To select only a subcomponent of a device, you must navigate to it from the **Options > Navigate Components** option in the Main window menu bar. In this case, you navigate to and capture, load, and verify one component at a time.



If you select all the attributes of a device (with all its subcomponents), it will take time for ECM to capture, load, and verify them all from the SPECTRUM model of the selected device (attributes within a RMON component, for example, can be extremely slow to load, capture or verify.)

Sorting and Loading Attributes by Sequence

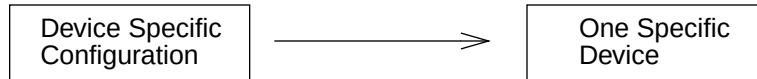
In ECM 4.0, you can sort attributes in configurations alphabetically by name or by flags. In ECM 5.0, you can also sort them by sequence. Sorting by sequence allows you to create configurations so that attributes will load in the order you select, in case certain attributes need to be loaded before others; this sort affects only the user interface presentation, the order inside the configuration doesn't change. Sorting by sequence displays the internal order.

Ways to Capture, Load, and Verify Configurations

New → In ECM 5.0, you can capture, load, and verify configurations, each task in one procedure, in the following ways. The first two ways are the same as in the previous version of ECM. The third way is new:

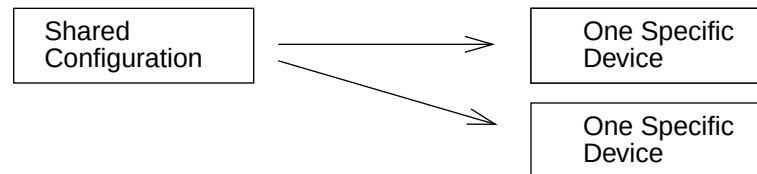
Same →

- One device specific configuration to one specific device — a *one-to-one* capture, load, and verification (same as in the previous ECM release).



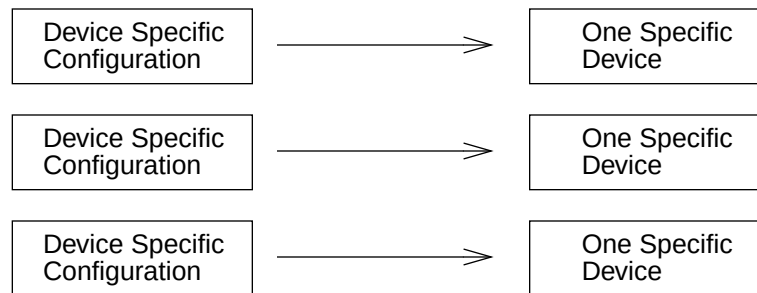
Same →

- One shared configuration to one or many devices of the same type — a *one-to-one* or a *one-to-many* capture, load, and verification (same as in the previous ECM release).



New →

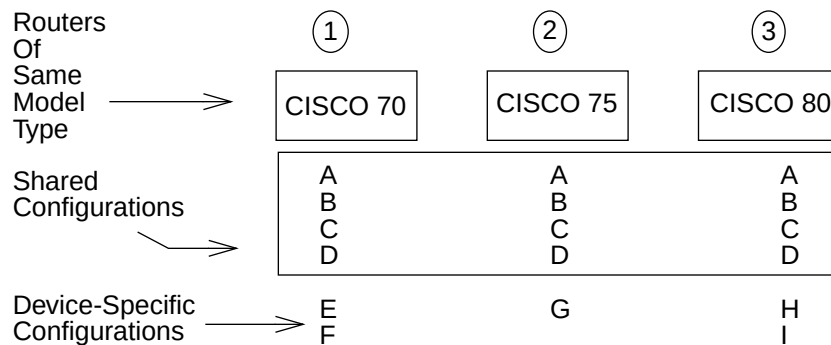
- Many device specific configurations to many specific devices on a one to one basis — a *many-to-many* capture, load, and verification (new to this release).



New Device Specific Configuration View

You can now see in the ECM main window for device specific configurations *all* device specific configurations for each device of the same type in the pre-selected landscape.

For example, suppose your selected landscape contains three CISCO routers, all of the same model type, type Rtr_Cisco, with router 1 having a CISCO 70, router 2 having a CISCO 75, and router 3 having a CISCO 80. Say also that these three routers share configurations A, B, C, and D. However, router 1 has two device-specific configurations: E and F. Router 2 has one device-specific configuration: G. Router 3 has two device-specific configurations: H and I. The following diagram illustrates this situation:



In ECM 4.0, you could see only one router's device specific configurations at a time. You could not see all the device specific configurations in the selected landscape. In the situation illustrated in the preceding figure, for example, this means the Main window for Device Specific Configurations could show only the device-specific configurations for the selected router (either only E and F if CISCO 70 was selected, only G if CISCO 75 was selected, or only H, and I if CISCO 80 was selected).

In ECM 5.0, you can see at one time all the devices with all the device specific configurations in the selected landscape. In the situation illustrated in the preceding figure, therefore, you could see all the device-specific configurations (E, F, G, H, and I) for each of the CISCO hubs.

Similar Shared Configuration View

As in the previous version of ECM, from the Shared Configurations View, you can see all the shared configurations for devices of the same

type in the selected landscape. In the situation illustrated in the preceding diagram, for example, you would see A, B, C, and D.



Chapter 1

Introduction

This chapter is an overview of ECM and the configuration management process.

In This Chapter

- [*How You Can Use ECM*](#)
A list of reasons for using ECM
- [*The Configuration Management Process*](#)
A description of the configuration management process with ECM
- [*Security Issues*](#)
A description of user privileges with ECM and SPECTRUM
- [*Database Storage Constraints*](#)
ECM database storage requirements
- [*Special Features for Cisco Routers*](#)
How to perform ECM operations with Cisco host configurations

How You Can Use ECM

Enterprise Configuration Manager (ECM) enables system administrators to create and maintain the configuration of an extensive array of network devices and applications from a central location. ECM provides complete configuration management capabilities for these reasons:

- It is fully integrated with SPECTRUM and SPECTRUM applications.
- It allows you to configure any device modeled by SPECTRUM.
- It runs on all SPECTRUM platforms.

ECM is designed so you can divide the tasks of network management between the network experts who set policy and create the configurations for the network and the system administrators who manage day-to-day operations.

The network expert can use ECM in the following ways:

- To create templates with the attribute lists that ECM provides.
- To create configurations by capturing attribute values from existing devices and then modifying them, if necessary.
- To set up a schedule of automatic captures, loads, and verifications to ensure stable configurations.

The system administrators can use ECM in the following ways:

- To detect configuration problems by verifying actual-to-expected device configurations.
- To load configurations to one or more devices on the network.
- To monitor the SPECTRUM Event Log to see the status and history of configurations.



ECM is a powerful network configuration management tool. It is not intended for the novice user! The application should be used only by network administrators and technicians who know how to manually configure routers and other devices on their network. ECM gives network administrators the ability to quickly reconfigure any number of devices from their own workstations. An inexperienced user could easily reconfigure devices that are central to the network and severely interfere with the flow of information on the network.

ECM does provide features that help you manage the risks involved in using this application. Among these are ECM community strings and the Safe Load option.

ECM community strings provide a layer of ECM security in addition to the existing SPECTRUM security. Administrators should use caution when assigning ECM community strings so that each user is granted the appropriate access to ECM operations.

The Safe Load option helps administrators control the load process. When Safe Load is on, ECM captures the device's configuration before loading a new configuration to it. If the load fails, ECM tries to restore the original configuration to the device. Safe Load cannot make the load process "fail-safe," but it does make it safer. At most, with Safe Load on, you may have to manually reconfigure one device.

However, even with the Safe Load feature, ECM is not risk-free. To protect your network, make sure that the experienced network administrators and technicians who have access to the application, work with extreme care and take appropriate precautions.

The Configuration Management Process

Configuration Management involves identifying, controlling, and monitoring the “managed objects” that make up a communication network. A managed object is any device that is modeled in the SPECTRUM database. These include not only hardware devices such as PCs, workstations, hubs, and routers, but also software applications on these devices. ECM uses the management modules developed by Cabletron to manage the configuration of these objects.

SPECTRUM continually monitors the network, maintaining a database of information about every managed object on the network. Enterprise Configuration Manager obtains the values of the attributes in the configuration by interrogating the SPECTRUM model of the managed object. The ECM administrator uses this information to manage the network. With ECM, the administrator can capture existing configurations or create new ones, load configurations to devices anywhere on the network, and then verify whether configurations have changed.

About ECM Templates

Enterprise Configuration Manager allows you to create configurations with templates or manually without templates. Before you begin working with ECM, it is important for you to understand the difference between ECM templates and configurations.

A template is a list of attributes for a specific device and its subdevices, if selected. You use ECM templates for only one operation — capturing the configuration of a device. When you create a template, Enterprise Configuration Manager provides a list of all readable/writable and non shared attributes for that type of device (with subdevices, if selected). In ECM you select the attributes you want to include in the template. Depending on the purpose of the template, your template might contain a single attribute (port status, for example) or dozens of attributes.

When you use templates to capture the configuration of an existing device, Enterprise Configuration Manager captures the instance IDs, if any, and the values of the attributes listed in the template. The attributes listed in the template plus the instance IDs and attribute values captured by ECM make up the new configuration.

Remember: A template is only a list of device-specific attributes, whereas a configuration is a list of device-specific attributes with instance IDs, if applicable, and their values. See [Figure 1-1](#).

Figure 1-1. ECM Template and Related Configuration

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Attribute Listing for Template new_config_template from iron

Device	Attribute
Gen_IF_Port 1	AT_If_Index
Gen_IF_Port 1	AT_Net_Addr
Gen_IF_Port 1	AT_Phys_Addr
Gen_IF_Port 1	Apps_Created_State
Gen_IF_Port 1	AutoPlaceOffsetX
Gen_IF_Port 1	AutoPlaceOffsetY
Gen_IF_Port 1	AutoPlaceStartx
Gen_IF_Port 1	AutoPlaceStarty
Gen_IF_Port 1	Community_Name
Gen_IF_Port 1	Condition
Gen_IF_Port 1	Condition_Value
Gen_IF_Port 1	ContactPerson
Gen_IF_Port 1	Contact_Status
Gen_IF_Port 1	DataRelayClass
Gen_IF_Port 1	Desc_Key_Word
Gen_IF_Port 1	Dev_Contact_Status
Gen_IF_Port 1	DeviceType
Gen_IF_Port 1	Device_Name
Gen_IF_Port 1	Device_Type
Gen_IF_Port 1	Disposable_Preceden
Gen_IF_Port 1	EDIT_COUNT
Gen_IF_Port 1	GeneralDiscClass
Gen_IF_Port 1	SysName
Gen_IF_Port 1	System_Oid_Verify
Gen_IF_Port 1	System_Up_Time
Gen_IF_Port 1	TimeOUT
Gen_IF_Port 1	TryCount
Gen_IF_Port 1	VIB_Display_List
Gen_IF_Port 1	VIB_Raster_Name
Gen_IF_Port 1	Value_When_Orange
Gen_IF_Port 1	Value_When_Red
Gen_IF_Port 1	Value_When_Yellow
Gen_IF_Port 1	Zoom_Factor
Gen_IF_Port 1	attr_to_read

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Attribute Listing for Configuration new_config from iron

Device	Attribute	Value
Gen_IF_Port 1	AT_If_Index	2.1.132.177.141.10
Gen_IF_Port 1	AT_Net_Addr	2.1.132.177.141.1
Gen_IF_Port 1	AT_Phys_Addr	2.1.132.177.141.1
Gen_IF_Port 1	Apps_Created_State	0.0.C.4.E3.63
Gen_IF_Port 1	AutoPlaceOffsetX	1
Gen_IF_Port 1	AutoPlaceOffsetY	0
Gen_IF_Port 1	AutoPlaceStartx	30
Gen_IF_Port 1	AutoPlaceStarty	100
Gen_IF_Port 1	AutoPlaceStarty	50
Gen_IF_Port 1	Community_Name	public
Gen_IF_Port 1	Condition	6
Gen_IF_Port 1	Condition_Value	0
Gen_IF_Port 1	ContactPerson	Lisa
Gen_IF_Port 1	Contact_Status	2
Gen_IF_Port 1	DataRelayClass	4
Gen_IF_Port 1	Desc_Key_Word	8.2(4);8.2(5)
Gen_IF_Port 1	Dev_Contact_Status	2
Gen_IF_Port 1	DeviceType	CiscoMIM
Gen_IF_Port 1	Device_Name	< No Value >
Gen_IF_Port 1	Device_Type	< No Value >
Gen_IF_Port 1	Disposable_Precedence	10
Gen_IF_Port 1	EDIT_COUNT	1
Gen_IF_Port 1	GeneralDiscClass	1
Gen_IF_Port 1	SysName	enax
Gen_IF_Port 1	System_Oid_Verify	1.3.6.1.4.1.9.1.5
Gen_IF_Port 1	System_Up_Time	180337411
Gen_IF_Port 1	TimeOUT	3000
Gen_IF_Port 1	TryCount	3
Gen_IF_Port 1	VIB_Display_List	0.0.0.0.6D.73.0.F8
Gen_IF_Port 1	VIB_Raster_Name	Defaultst.csi
Gen_IF_Port 1	Value_When_Orange	3
Gen_IF_Port 1	Value_When_Red	7
Gen_IF_Port 1	Value_When_Yellow	1
Gen_IF_Port 1	Zoom_Factor	100
Gen_IF_Port 1	attr_to_read	230006

ECM Template

ECM Configuration

About ECM Configurations

Enterprise Configuration Manager allows you to create configurations in two ways — either with templates or manually without templates. During both processes ECM captures attribute values and instance IDs, if any, from the selected device. The ECM capture process provides an efficient way to “populate” a configuration, reducing the chances of human error. The user can then modify attribute values and instance IDs when necessary. To manage the network, you will want to create configurations both manually and with templates, depending on the tasks you intend to perform with the configuration.

Enterprise Configuration Manager allows you to create the following types of configurations:

- Configurations that can be loaded to the device that you selected in SpectroGRAPH or in the ECM Components dialog box or to other devices of that type.
- Device specific configurations that are restricted to one device and cannot be loaded to other devices. ECM displays device specific configurations only in the Device Specific Configurations window. In this window, you can see and manage all the device specific configurations for all the devices of the same type as the selected device in the selected landscape.
- Multiple configurations that can be loaded sequentially to a single device. You should create multiple configurations when you need to configure certain attributes before configuring others or when configurations are very large.
- Shared configurations that can be loaded to multiple devices of the same type. ECM displays shared configurations only in the Shared Configurations window. In this window, you can see and manage all the shared configurations for all the devices of the same type as the selected device in the selected landscape.

Once you have created a configuration, you can use the ECM Load and Verify options. The Load option enables you to load the configuration to the device from which it was captured or to one or more devices of the same type. This is how you configure new devices or reconfigure existing ones. The Verify option enables you to verify whether a device's attribute values match that of the configuration you created.

Security Issues

Enterprise Configuration Manager is a powerful tool. Because it gives users the ability to reconfigure any number of devices on a network, the administrator should use extreme caution when setting up user-privileges. ECM is designed so that network administrators can restrict the types of operations that a user can perform. For example, you may want to prevent inexperienced users from creating or loading configurations — these are the two operations, when misused, which could cause damage to a functioning network. With ECM's security features, the administrator can set up accounts for these users allowing them to view and verify but not create and load configurations.

There are two ways to provide security when working with Enterprise Configuration Manager: SPECTRUM security and SNMP security:

- SPECTRUM security controls a user's access to all network management operations for any device.
- SNMP security, on the other hand, controls a user's access to a single device.

SPECTRUM and SNMP security are described in the following sections.

For specific details about setting up community strings in SPECTRUM, refer to the **SPECTRUM Administrator's Reference**.

SPECTRUM Security

In SPECTRUM, the system administrator maintains security by issuing users a community string. This community string can have one or more parts, each part specifying permissions for a certain "community." For example, the community string **ADMIN,0:ECM,3** gives the user access to all SPECTRUM administration privileges but only View, Verify, and Load privileges in ECM.

The following rules apply to community strings:

- The SPECTRUM community string **ADMIN,0 - 2** (without an additional ECM community string) gives users full privileges in ECM.
- All ECM community strings require the **ADMIN,0-9** community name as a prefix. The correct format is **ADMIN,0-9:ECM,0-8**.
- ECM community strings give users the privileges that are specified in the ECM part of the community string. It does not matter if the ADMIN part of the community string specifies greater or fewer privileges.

The following table shows the privileges that are given by ECM community strings.

Community String	ECM Privileges	Windows Accessed
ECM,0 - 1	View, Verify, and Load Configurations Create/Edit Templates and Configurations	The user can access all operations in all ECM windows.
ECM,2	View and Verify Configurations Create/Edit Templates and Configurations	The user can access all ECM operations except Load. The Load and Clear Load Status buttons/options in the Main window are grayed-out.
ECM,3 - 4	View, Verify, and Load Configurations	The user can access all operations in the ECM Main window. Access to the ECM Configurations and ECM Templates windows is denied.
ECM,5 - 9	View and Verify Configurations	The user can access only limited operations in the ECM Main window. The Load and Clear Load Status buttons/options in the Main window are grayed-out. Access to the ECM Configurations and ECM Templates windows is denied.

SNMP Security

Enterprise Configuration Manager is bound by the security measures of the network management protocol. SNMP provides a second tier of security for your network. SNMP security allows you to restrict access on a device-by-device basis by setting the community name on the device and in the SPECTRUM database. When the community name in the SPECTRUM database does not match the community name on the device, the user is not granted access to that device.

The system administrator can also control access to a device with the read/write privileges that are specified in the SNMP community name. Both read and write access are necessary to run all ECM operations. If the SNMP community name on the device specifies read-access only, the user will not be able to load configurations to the device.

Database Storage Constraints

Because of SPECTRUM's database storage requirements, there are limitations on the size of ECM configurations and templates and the number of devices to which you should load a configuration.

When you work with ECM, do not exceed the maximums indicated below.

Item	Maximum	Comments
Template Size	31,995 bytes or 6000 attributes (whichever comes first)	The largest template that you create probably will not exceed the size or number of attributes allowed.
Configuration Size	159,975 bytes or 10,000 attributes (whichever comes first)	If you capture a configuration from a device with attributes that have many instance IDs, the size of the configuration could possibly exceed the limits. In this case, divide the large configuration into two or three smaller configurations.
Cisco Host Configuration Size	159,975 bytes	On rare occasions the size of the host configuration could exceed the limits. On these occasions, ECM will not capture the host configuration.
Number of Devices Loaded per Configuration	1,000	Do not load more than 1,000 devices during one load operation because ECM cannot record the load results of more than 1,000 devices. (ECM can actually load more than 1,000 devices but cannot save the load results of more than 1,000 devices.)

ECM displays an error message if you try to save a configuration or template that is too large or if you try to capture a configuration that is too large. (At present ECM does not indicate whether it is the size of the host configuration or the number of attributes that exceeds the limits.)

ECM does not display any error message if you load a configuration to more than 1,000 devices. It will perform the load but saves the load results for only the first 1,000 devices.

Special Features for Cisco Routers

Cisco Host Configuration File With Which ECM Can Work

When you are configuring Cisco routers, you have the option of working with both device attributes and Cisco host configuration commands. The host configuration file on the Cisco router contains the host configuration setup commands used to configure the router:

- When you capture or create a Cisco router configuration, you will notice an Edit Host Configuration button at the bottom of the window.
- Likewise, when you create a template for a Cisco router, you will notice Include Host Configuration radio buttons at the bottom of the window.

These buttons enable you to perform all ECM operations on the Cisco host configuration. This means you can capture the host configuration commands, include them in configurations, modify them, verify them, and load them to devices as part of the ECM configuration.

Cisco Device Types That ECM Can Configure

You can perform ECM operations on devices of any Cisco device type as long as the following two requirements are met:

- The device type must allow TFTP access to the Cisco host configuration.
- The device type and ECM model type handle must be listed in the CISCO_MTYPES file, located in your ECM directory.

If you open the CISCO_MTYPES file, you will see that it includes the following device types:

Rtr_Cisco	Rtr_CiscoMIM	Rtr_CiscoAGS	Rtr_CiscoIGS
Rtr_CiscoMGS	Rtr_CiscoCGS	Cisco_Devs	Cisco_Com_Mib
Rtr_Cisco2500	Rtr_Cisco3000	Rtr_Cisco4000	Rtr_Cisco7000
Rtr_CiscoMIM3T			

If you want to work with devices of a type not included in the CISCO_MTYPES file, call Cabletron Support to see if you can include that device type in the file. (Support will be able to tell you whether the device allows TFTP access to the Cisco host configuration.) If Cabletron Support tells you that the device is permitted, enter the device type and ECM model handle in the CISCO_MTYPES file. When you invoke ECM again, you will be able to perform all ECM operations on devices of this type.

Location of Cisco Router Information

Several chapters in this manual include instructions about working with routers. In general, if you want to quickly locate information about Cisco routers, go to the end of the chapter. You will find the Cisco router information there.

The sections on Cisco routers are as follows:

- [*Special Options for Cisco Router Templates*](#) in Chapter 3.
- [*File Menu and Related Buttons*](#) in Chapter 4.
- [*Viewing and Editing the Host Configuration Passwords*](#) in Chapter 4.
- [*Special Load Information for Cisco Routers*](#) in Chapter 5.
- [*Verifying the Cisco Host Configuration*](#) in Chapter 6.
- [*How to Download Firmware*](#) in Chapter 10, using first a MicroMMAC and then Cisco routers as examples.
- [*How to Turn Cisco Router Protocols On and Off*](#) in Chapter 10.
- [*Installation Procedures Required by Cisco Routers*](#) in Appendix A.



Chapter 2

Getting Started

This chapter describes basic ECM functionality.

In This Chapter

- *Accessing ECM in SPECTRUM*
How to access ECM from SPECTRUM.
- *Specifying ECM Preferences/Settings*
How to specify the landscapes for configurations and devices, the way the landscapes are displayed, Save and Safe Load options, and attribute flag settings
- *Navigating to Device Components*
How to navigate to device components.

ECM allows you to manage the configurations of all components of the device that you selected in SpectroGRAPH. These components include the applications, boards, interfaces, and ports that are on the device.
- *Selecting Devices Within ECM*
How to select multiple devices without having to exit ECM.
- *ECM Main Window*
A description of the ECM Main window sections, fields, buttons, and menu options.
- *Tips for Working with ECM Windows*
How to identify ECM button functions, manipulate ECM windows, use keyboard shortcuts, search through lists, and select multiple entries in a list.

Accessing ECM in SPECTRUM

Before you can begin working with ECM, you must have SpectroGRAPH up and running. For instructions, see the **SPECTRUM System Administrator's Guide**.

To access Enterprise Configuration Manager, follow these steps:

1. Open a view window in SpectroGRAPH.

ECM is accessible from any view window—Topology view, DevTop view, or Device view, for example.
2. Select the device you want to work with. When selected, the border of the device is highlighted.
3. Invoke ECM in one of the following ways:
 - Place the cursor on the device and press the right mouse button (the menu button) to display the Icon Subview menu. Select **Utilities** and then **EnterpriseConfigManager**. See [Figure 2-1](#) on Page 2-3.
 - Or pull down the view menu at the top of the window, select **Icon Subview**, then **Utilities**, and then **EnterpriseConfigManager**.

If you have performed a custom install and specified the preferred landscapes that ECM should display, the ECM Main window appears.

Otherwise, a Preferences window appears so that you can select the landscapes that you want to work with. To select landscapes, follow the procedures described in [Specifying ECM Preferences/Settings](#) on Page 2-4.



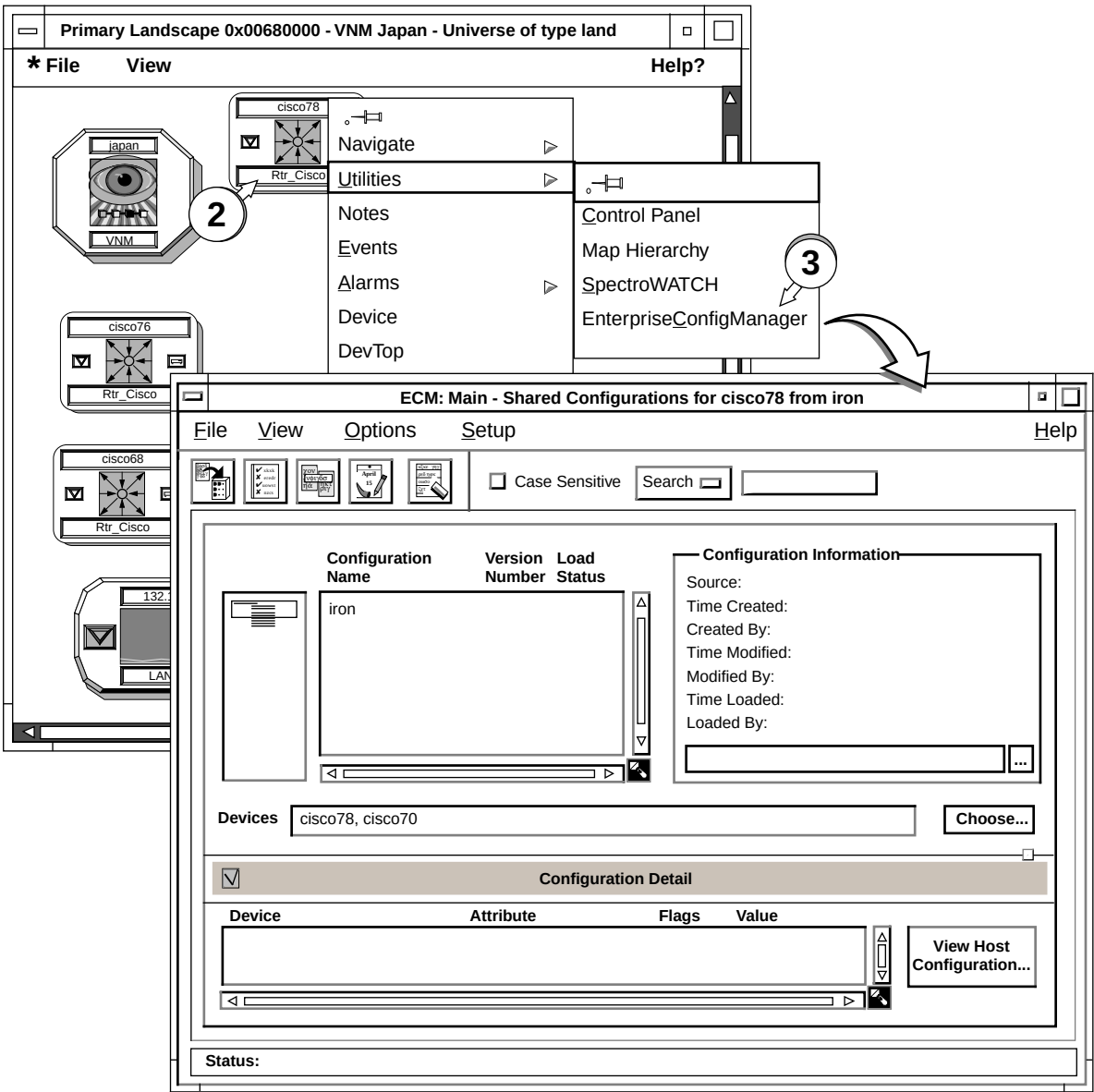
If you want to run ECM in a distributed VNM environment, click on the device of the appropriate landscape and select a device within that landscape. Then follow the steps in this section.

Remember: the SpectroSERVER component of ECM must be installed on the VNMs that you plan to use for storing configurations and templates.

If you have just installed ECM, the ECM Main window displays only the list of landscapes that are visible to your SpectroSERVER. There are no configurations listed under the landscape names because ECM does not provide any default configurations. Since there are no configurations in the window, all buttons are grayed-out and information fields are empty.

After users create configurations, however, ECM displays the names of the configurations in the Configuration Name list and information about the selected configuration in the rest of the window. Buttons become enabled at this time.

Figure 2-1. Invoking ECM



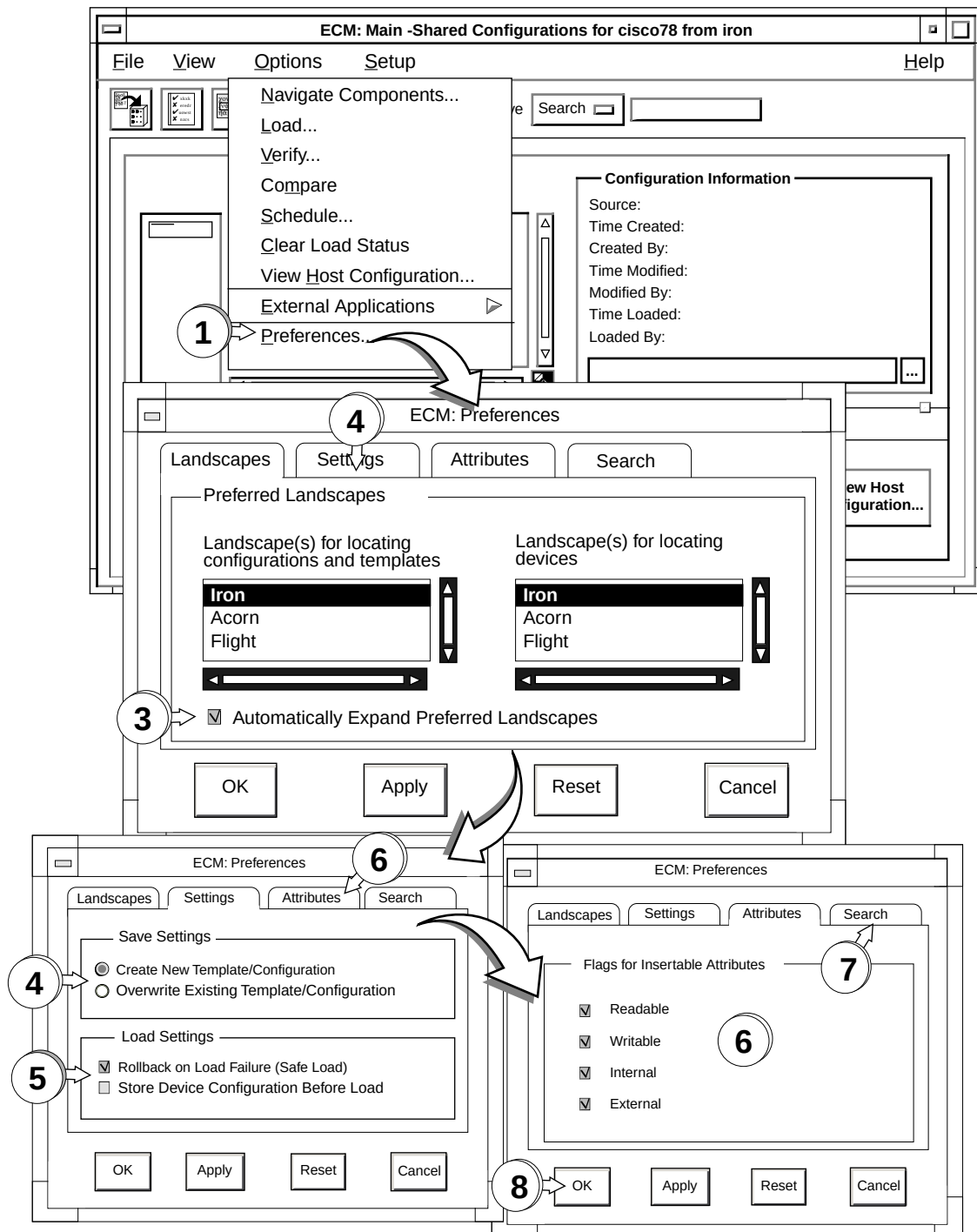
Specifying ECM Preferences/Settings

The ECM Preferences dialog box allows you to specify the landscapes that will be included in various ECM windows, the way these landscapes will be displayed, and various Safe Load and Save settings. Just remember that these settings apply only to the current ECM session. If you want to define preferences permanently, you must modify the ECM resource file. See [Appendix C](#) for these procedures.

Follow these steps to define preferences in the Preferences dialog box (Refer to [Figure 2-2](#) on Page 2-5):

1. Click on **Preferences** in the Option menu of the ECM Main window to open the Preferences dialog box.
2. Select the Preferred Landscape settings:
 - Landscapes for locating configurations/templates will appear in the ECM Main, Configurations, Templates, and Capture windows.
 - Landscapes for locating devices will appear in the Manage Other Devices and Filter windows.
3. Toggle the **Automatically Expand Preferred Landscapes** button to display the configurations/templates within a landscape in either a collapsed or expanded format.
4. Click on the **Settings** tab and specify the Save settings:
 - If you select Create New Template/Configuration, ECM creates a new template/configuration with a new version number when you save configurations or templates.
 - If you select Overwrite Existing Template/Configuration, ECM overwrites the template or configuration and increments the version number.
5. Specify Load settings:
 - When Safe Load is on, ECM captures the device's configuration before beginning a load. Then if one attribute cannot be loaded, ECM stops the load and attempts to roll back the original configuration. When Safe Load is off, ECM performs a load even if some attributes cannot be loaded successfully.
 - When Store Device Configuration Before Load is on, ECM stores the device configuration before performing the Load operation. The stored configuration has the same name as the configuration that was loaded to the device but the version number is incremented.
6. Click on the **Attributes** tab and then in the resulting dialog box specify which flags you want as insertable attributes. See [Configuration Detail Section and Status Field](#) on Page 2-17 for a description of these attributes.

Figure 2-2. Specifying Preferences



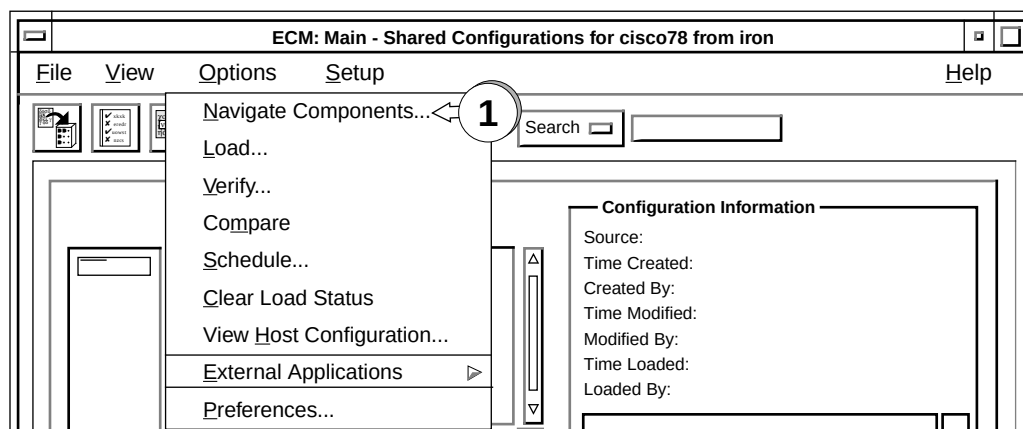
7. Click on the Search tab and then specify in the resulting dialog box whether you wish to activate (button recessed) the **Enable Extended Search** option. When active, this feature automatically selects the first match of either the Device name or the Attribute name found in the list; otherwise, the search is done only on Device Name entries.
8. To apply the settings and close the Preferences dialog box, either click **OK** or else click on **Apply** and then **Cancel**.

Completion of this sequence returns you to the ECM Main window. The settings that you have just defined stay in effect for the current session.

Navigating to Device Components

When you first open ECM, the ECM Main window displays the configurations for the device selected in SpectroGRAPH. However, ECM also allows you to configure the components of the device, which may include applications, interfaces, boards, and ports. If you want to work with only a component of the device selected in SpectroGRAPH, continue with the additional steps in this section.

Figure 2-3. The Navigate Components Option

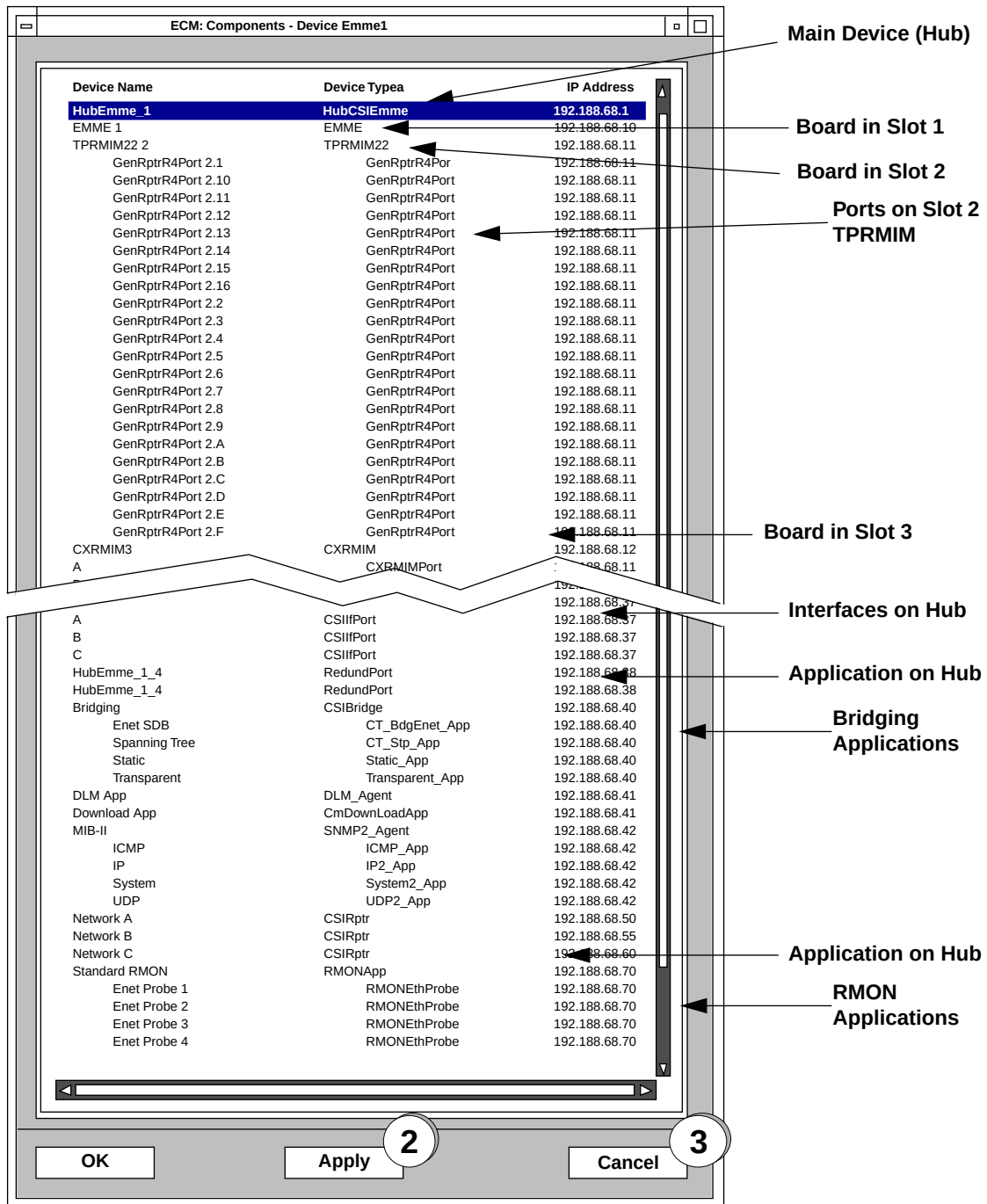


1. In the ECM Main window, select the **Navigate Components** option under the Options menu. See [Figure 2-3](#).

The Components dialog box appears. See [Figure 2-4](#). This dialog box displays the components according to the relationship of the components to the main device. The following rules determine the organization of the components list:

- The main device appears flush left at the top of the list.

Figure 2-4. The Components Dialog Box — Scrolled from Top to Bottom



- All components of this main device — for example, boards, interfaces, and applications — appear flush left under the device.

- All sub-components of a component appear indented under the component.
2. Select the component that you want to work with and then click on **Apply**.

ECM updates the ECM Main window. You can keep both the ECM Main window and the Components dialog box open at the same time — just arrange them on the screen so both are visible. Then click on various components in the Components dialog box and click on **Apply**. You can see the configurations that are available for all devices of that component's device type in the Main window.
 3. When you want to close the Components dialog box, click on **Cancel**.



If you want to work with a component of a selected device as part of a larger configuration (rather than as an independent configuration), then you can scroll to that component in the Configuration Detail portion of the selected window. See [Configuration Detail Section and Status Field](#) on Page 2-17.

Selecting Devices Within ECM

Once you select a device in the SpectroGRAPH, you have access not only to that device and all its components, but also to all devices of the same type in the selected landscape(s). This means you do not have to exit ECM to:

- View all the device specific configurations of all the devices of the same type.
- View all the shared configurations of all the devices of the same type.
- Capture configurations from multiple devices of the same type.
- Load and verify device specific configurations to multiple devices, on a one-to-one basis.
- Load and verify a shared configuration to multiple devices.

See the [Devices Section](#), starting on Page 2-11, and the procedure descriptions in the separate specific chapters for details on selecting devices.



Though you can select different devices of the same type as the one selected in the SpectroGRAPH, without having to exit ECM, you have to exit ECM and select another device to access the components of that other device.

In ECM you can access the components of only the device selected in the SpectroGRAPH.

ECM Main Window

When you work with ECM, you perform most operations in three windows—the ECM Main, Configurations, and Templates windows. Although these windows differ in some ways, they still have many similarities.

Common Features

The following pages describe in detail the various sections of the ECM *Main* window. Features that are explained in detail in this chapter are *not* described again in other chapters. The chapters that describe the Templates and Configurations windows only cover the features that are *unique* to those windows.

Selected Device and Selected Component

The ECM Main window is the first window that you see when you invoke ECM. If you are working with the device selected in SpectroGRAPH, the Main window contains the information about that device with which you can begin working. However, if you are working with a *component* of the device selected in SpectroGRAPH, you need to first navigate to the Components dialog box and select this component. After you click on the Apply button in the Components dialog box, the Main window contains the configuration information for that component.

Configuration Type and Window View

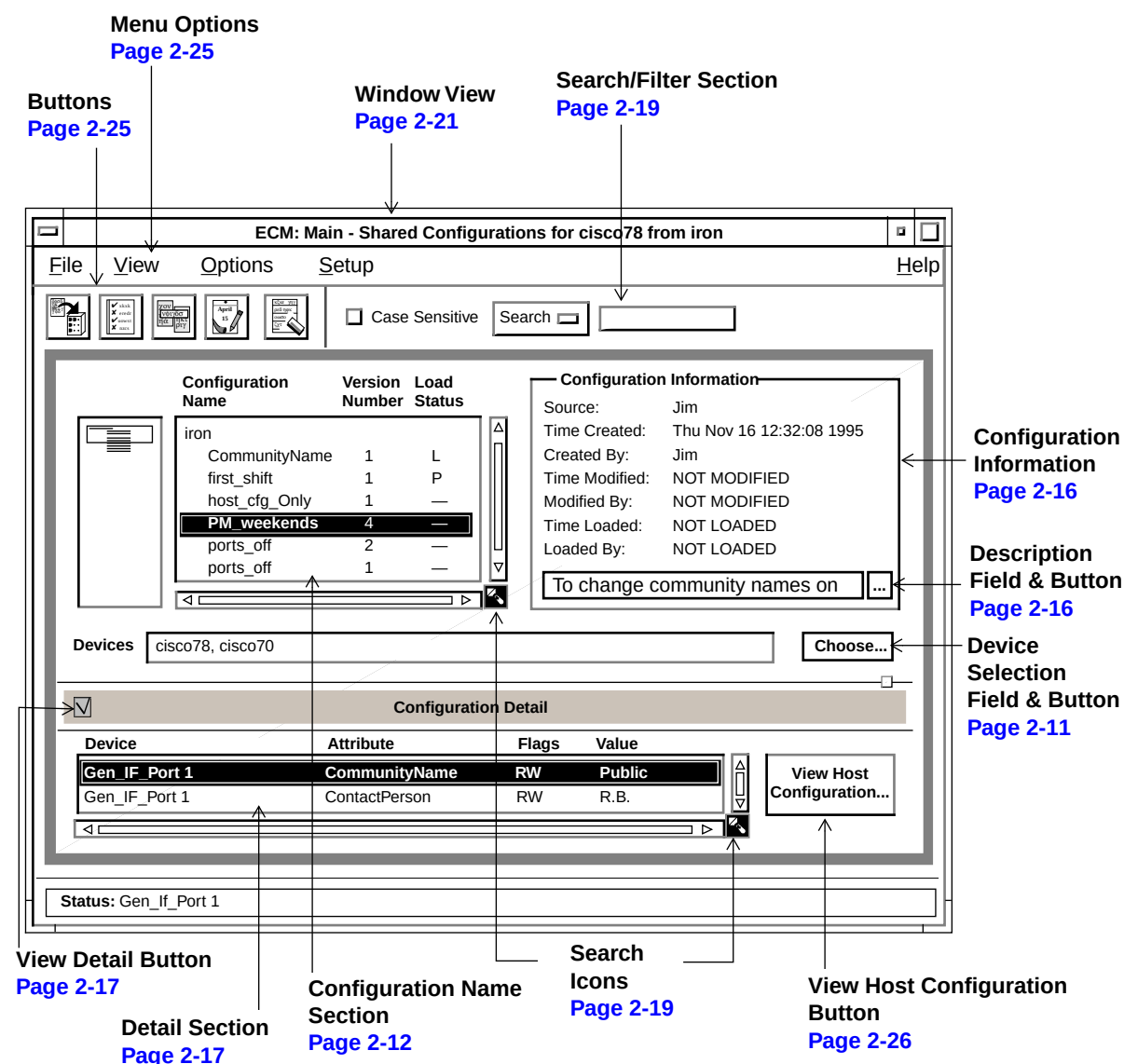
ECM allows you to display either shared configurations or device specific configurations in the Main or Configurations windows. Always check the title bar to see whether the window is in Shared or Device Specific window. You can change the window from one to the other by selecting the applicable men bar View option.

[Figure 2-5](#) on [Page 2-10](#) shows a shared configurations window while [Figure 2-6](#) on [Page 2-11](#) shows a device specific configurations window. Note the differences in the display because of the different type of configurations.

Main Window Functions

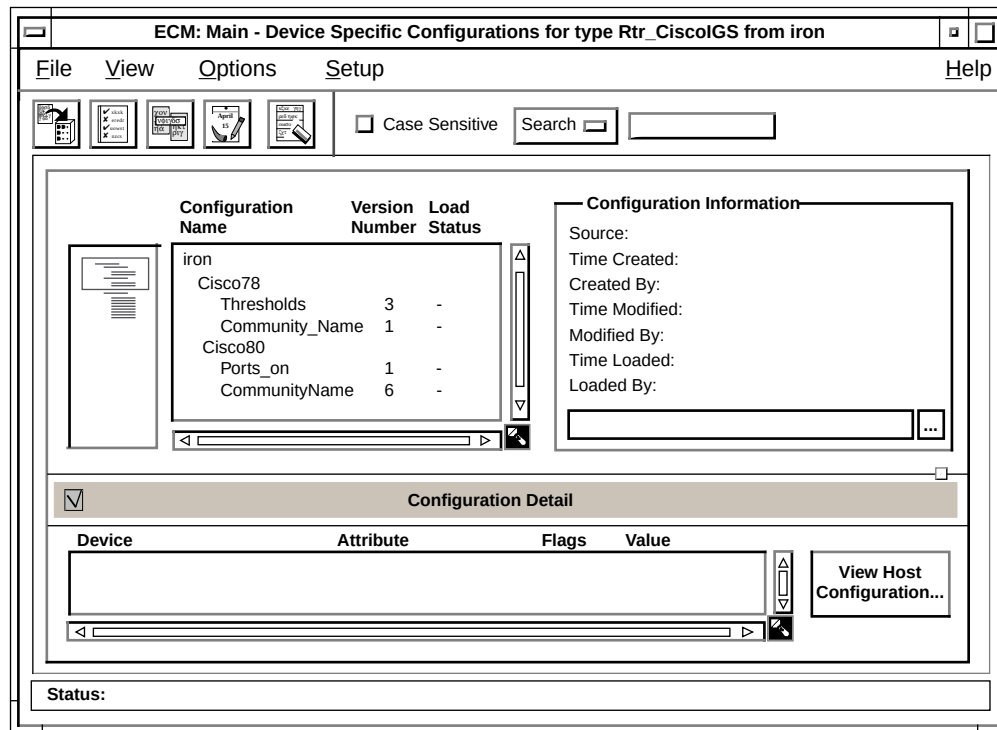
The ECM Main window enables you to:

- **View** the necessary information about the configurations that have been created.
This information includes the list of all the configurations that you can load to the selected device(s), the attributes in each configuration along with their instance IDs (if any) and values, and the load status and load history of each configuration.
- **Verify** the configuration of the selected device(s) of the same type and schedule automatic verifications.
- **Load** configurations to the selected device or to other devices of the same type and **schedule** automatic loads.
- **Compare** two configurations.

Figure 2-5. ECM Main Window — Shared Configurations Window

This view of the Main window is of shared configurations.

If you select to view device specific configurations in the Main window, the display differs in one way: devices are listed in the Configuration Name field under their landscapes and above the configurations to which they apply rather than in a separate Devices field. In the device specific window, there is no separate device selection field and Choose button.

Figure 2-6. ECM Main Window — Device Specific Configurations Window

In the device specific window, if there are no configurations, then only devices are listed under their landscapes in the Configuration Name field.

In this example, since no configuration is selected, there is no configuration detail displayed.

Devices Section

Figure 2-7 identifies the components of the Devices section across the middle of the Shared Configurations window of the ECM Main window, consisting of a **Devices** text box and a **Choose** button. This section lets you select one or more devices to which you can load and verify. The first device listed in the text box is the preselected device.

Figure 2-7. Devices Section in Shared Configurations Window

Click oning the **Choose** button from the ECM Main window brings up the Select Devices dialog box (Figure 2-8), providing a multi-select device list with a 2-level hierarchy of landscapes containing devices of the same type.

Figure 2-8. Select Devices Dialog Box

Device Name	IP Address
Oak	
Network A	132.177.142.70
Network B	132.177.142.70
Network C	132.177.142.70
Maple	
Network A	132.177.148.80
Network B	132.177.148.80
Network C	132.177.148.80
Acorn	

The device names you select in the Select Devices dialog box are inserted into the “Devices” text box of the ECM Main window (see Figure 2-6 on Page 2-11); you can then return to that window and click on the **Load**, **Verify**, or **Schedule** buttons in the tool bar on that window (or select the equivalent options from the Options menu). This arrangement lets you perform load and verify operations of shared configurations on multiple devices or set up schedule assignments without having to get out of the Configuration Manager to select the individual devices from the SpectroGRAPH.

Configuration Name Section

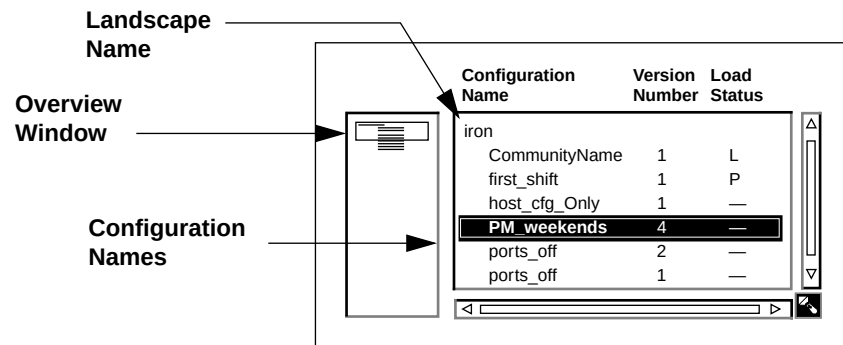
Both the ECM Main and Configurations windows contain a Configuration Name section. The Templates window also has a similar section, displaying templates instead of configurations.

Shared Configurations Window

If your window is in *Shared Configurations window*, this Configuration Name section shows a two-level hierarchy of landscapes containing configurations, as shown [Figure 2-9](#), following.

Beneath the Configuration section is a button enabling a device-selection window by which you can apply the shared configurations to one or more devices. See the [Devices Section](#) on Page 2-11 for an explanation of the device selection portion of the shared configuration window.

Figure 2-9. Configuration Name Section — Shared Window



Device Specific Configurations Window

If your window is in *Device Specific window*, this section of the screen shows a three-level hierarchy of landscapes containing device models containing configurations, as in [Figure 2-10](#). In the Device Specific window, there is no device selection button, since configurations are already applied to devices.

Figure 2-10. Configuration Name Section — Device Specific Window

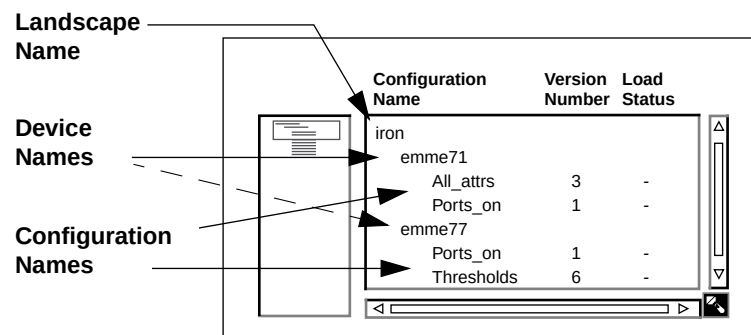


Table 2-1 describes the fields in the Configuration Name section.

Table 2-1. Fields in the Configuration Name Section

Field	Function
Overview Window	The Overview window is a navigational aid that helps you see exactly where you are when you scroll through the Configuration list. Notice that as you scroll down through the configuration list, the rectangular box in the Overview window also moves downward. The rectangular box outlines the configurations that are currently displayed in the Configuration Section. The highlighted line shows you the configuration that is currently selected. You can also drag the rectangle in the Overview window up or down to scroll through the Configuration list.
Landscape Name	Landscape names appear flush left in the Configuration list. You can double click on the landscape name to expand or collapse it. An expanded landscape shows all the configurations stored in that landscape. A collapsed landscape shows only the landscape name. If the SpectroSERVER loses its connection to the landscape, the landscape name turns red. The specific landscapes displayed in the window are determined by the parameter values in the resource file, Ecm, or the settings in the ECM Preferences dialog box.
Device Name	Device names, nested under the landscapes they reside in, appear only in the device specific window. This allows you to view all the configurations of all the devices of the same type in the selected landscape(s). This also allows you to load, verify, and schedule configurations without having to get out of the Configuration Manager.

Table 2-1. Fields in the Configuration Name Section (Continued)

Field	Function
Configuration Name	This field contains the names of configurations created for devices of the same type as the device you selected in SpectroGRAPH or in the ECM Components dialog box. In the device specific window, configurations are indented under the devices they configure. In this window, you can see all the device specific configurations in the selected landscape(s). You cannot see shared configurations. In the shared window, configurations are nested only under the landscape in which they are stored. In this window, you can see all the shared configurations in the selected landscape(s). You cannot see device specific configurations. If the option Auto Expand Landscapes is OFF, the list is collapsed — only landscape names are visible. In this case, you have to double click on the landscape name to view the configurations stored there.
Version Number	The version number helps you track the modifications of configurations. Whenever you modify and then save an existing configuration, ECM always increments the version number. If you specify (in the Preferences window or the resource file) that Save should overwrite the existing configuration, the Save operation overwrites the configuration and increments the version number. If you specify that Save should create a new configuration, the Save operation creates a new configuration and increments the version number, leaving the existing configuration unchanged. Version numbers begin at 1.
Load Status	This field shows the most recent load status of the configuration. The load status can be one of the following: - L = Fully Loaded — = Not Loaded - P = Partially Loaded - R = Rolled Back You can define the sort order of configurations by selecting one of the Sort options in the men bar View menu. If you specify Sort by Load Time, then Loaded configurations appear at the top of the list, next Partially Loaded and Rolled Back, and finally Not Loaded, in that order.

Configuration Information Section

[Figure 2-11](#) shows the components of the Configuration Information section, which appears in both the ECM Main and Configurations windows. This section contains historical information about the selected configuration. The Template information section contains similar information. [Table 2-2](#) describes the fields in this section.

Figure 2-11. Configuration Information Section

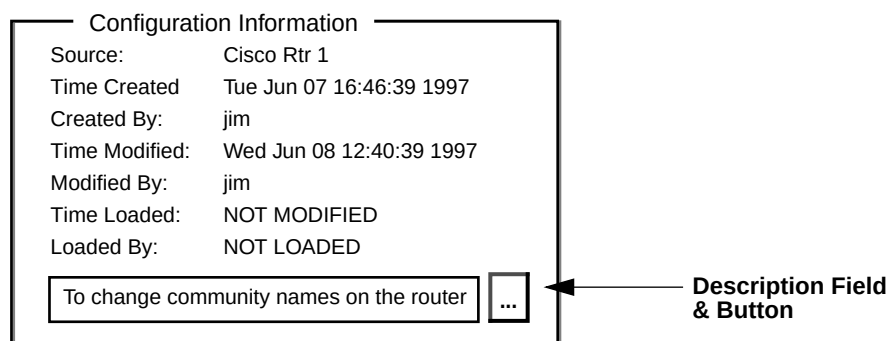


Table 2-2. Fields in the Configuration Information Section

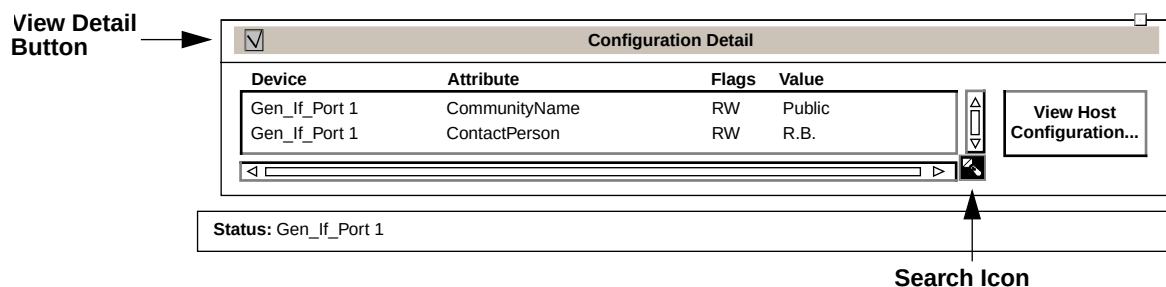
Field	Function
Source	This field contains one of the following: - Name of the device from which the configuration was captured. - Name of the user who manually created the configuration. - Word “<i>imported</i>” if the configuration was imported into ECM.
Time Created Time Modified Time Loaded	These fields contain the last date and time the configuration was created, modified, or loaded. If the configuration has not been modified or loaded, the Time Modified field says NOT MODIFIED and the Time Loaded field says NOT LOADED.
Created By Modified By Loaded By	These fields contain the login name of the person who created, modified, or loaded the configuration. If the configuration has not been modified or loaded, the Modified By field says NOT MODIFIED and the Loaded field says NOT LOADED.

Table 2-2. Fields in the Configuration Information Section (Continued)

Field	Function
Description Field	This field contains comments entered by users. To view the complete text, click on the button to the right of the field. This opens a Description dialog box. Because the ECM Main window is a view window, you cannot edit or enter text in the Description dialog box if you open it from this window. You can edit or enter text if you open the Description dialog box from the Configurations window.

Configuration Detail Section and Status Field

Figure 2-12 shows the Configuration Detail section of the ECM Main window. Table 2-3 describes the functions of the fields in that same section.

Figure 2-12. Components of Configuration Detail Section**Table 2-3. Fields in Configuration Detail Section**

Field	Function
Device Field	Contains the device name or subcomponent associated with each attribute. You can use the scroll bar on the right to navigate to a device subcomponent, if the selected configuration contains such. The device name associated with the selected attribute is also displayed in the status bar. The status bar contains complete device names. The attribute-list device field is limited to 18 characters.

Table 2-3. Fields in Configuration Detail Section (Continued)

Field	Function
Attribute Field	Contains the list of attributes in the configuration and their instance IDs, if any.
Flags Field	Contains the flags of the attributes. Possible flags are: External: The value for the attribute is set outside the SpectroSERVER. Readable: A client or other application can read the attribute value from the SpectroSERVER database. An attribute value that is not readable (write-only) cannot be captured for a configuration. In this case, the detail result of the capture operation will show “Operation not applicable.” See Capture Result and Capture Detail Windows in Chapter 4. Writable: A client or other application can write the attribute value to the SpectroSERVER database.
Value Field	Contains the values of the attributes. Values can be numbers or text strings.

Status Field

The Status field (at the bottom of the Main, Configuration, and Template windows) displays the device name (that is, the SPECTRUM model name of the device) associated with the most recently selected attribute in either the Insertable Attribute list box or the inserted Attribute list box. If no attribute or more than one attribute is selected, the status field is blank.

The device name field in the detail and insertable attribute lists has a fixed length of 18 characters. However, the device name can be up to a maximum of 1024 characters. The purpose of the status field is to display complete device names, in case they do not fit in the attribute lists. Device names that exceed the width of the status field will cause scroll arrows to appear, allowing you to display the entire device name.

View Detail Button

By clicking on the View Detail button (or anywhere in the shaded area containing the Configuration Detail label), you can display the configuration attribute detail or hide that detail. The button is an on/off switch. Clicking once displays the detail; clicking a second time hides it. The button contains a checkmark when it is on (recessed) and is blank when off (raised).

The configuration listing displays much faster if the detail is turned off since the system then does not have to collect the attribute information. If you just

want to see general configuration information, such as if a configuration was modified, click this button off.

Configuration Detail Fields

Various ECM windows include Detail sections. However, because you perform different operations in the various windows, the Detail sections differ slightly. The following table describes the fields in the Main window Configuration Detail section.

Attribute Information on the Selected Configuration

The Detail section displays information about the attributes that are in the selected configuration. When you click on another configuration in the configuration list, different attributes appear in the attribute list.

Since the ECM Main window is a View, Load, and Verify window, you cannot add attributes or edit attribute values in this window. The attribute list simply provides you with a way to view the attributes in the configuration before you load the configuration to a device.

Viewing Attributes

To view a long list of attributes, either enlarge the Detail section by dragging on the bottom edge or corner of the ECM Main window or use the scroll bars to scroll through the list.

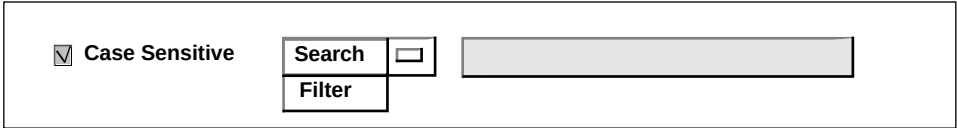
Searching for Attributes or for Device Subcomponents

To search through a long list of attributes and/or a list of devices associated with the attributes, (1) click on the Search icon in the right, lower corner of the Configuration Detail section. (2) Then select either the Search or Filter button (at the top of the window), and (3) type the letters you are searching for (or filtering on) in the Search/Filter field. See [Search/Filter Section and Search Icon](#), starting on Page 2-19, for further information.

Search/Filter Section and Search Icon

[Figure 2-13](#) shows the Search/Filter section of the ECM Main window. [Table 2-4](#) identifies icons and buttons you can use for searching or for filtering a list.

Figure 2-13. Components of Search/Filter Section



ECM Search and Filter buttons help you locate a configuration, a template, or an attribute, or a device displayed in a list.

Search finds a word that *starts* with a specific letter or letters.

Filter, available only for attribute lists, reduces the list down to those words *containing* the specified letter or letters. These letters can occur anywhere in the word.

To search or filter a list, use the icons and buttons described in the following table.

Table 2-4. Icons and Buttons for Use when Searching or Filtering a List

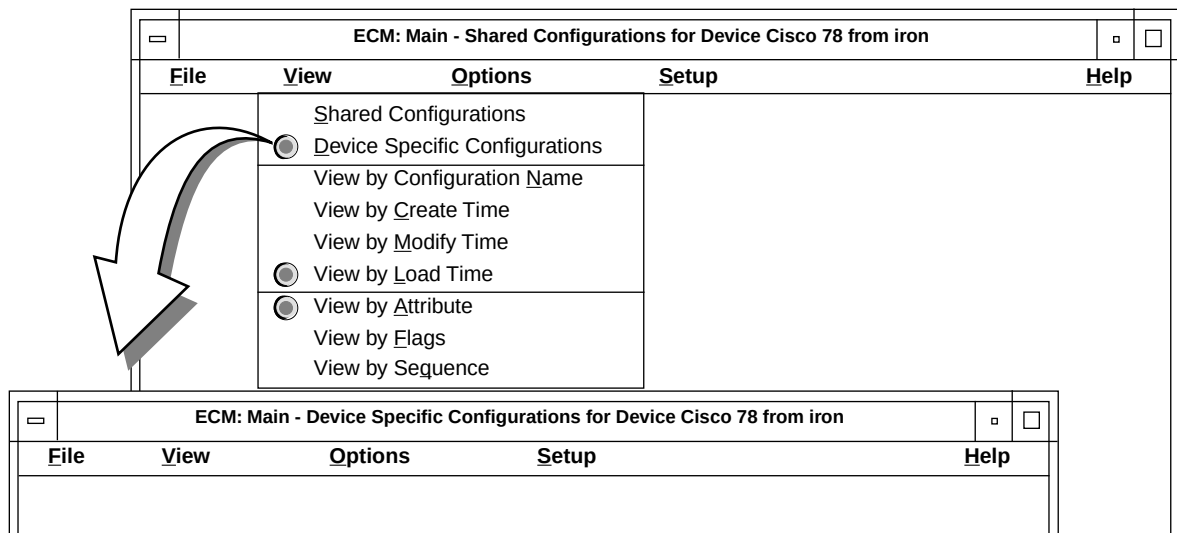
Icons and Buttons	Function
Search Icon 	Click on the Search icon (the little flashlight) to select the list to the left of the flashlight. The flashlight points at the list. ECM template, attribute, configuration, and device lists all have Search icons associated with them. Click on the appropriate Search icon to select the list and then use the Search and Filter buttons to filter or search through that list. When you click on the Search icon, the list it points to and the text field next to the Search button are highlighted in yellow.
Search Button	Select the Search button to search for a word beginning with a specific letter or letters. Then type the letters in the Search text field. If ECM finds these letters at the beginning of a word, the list quickly scrolls to that word. Otherwise, the program beeps to let you know the letters were not found.
Filter Button	Select the Filter button to filter out all words except those containing specified letters. Then type the letters in the Filter text field. If ECM finds these letters, it displays the words containing the letters. Otherwise, the program beeps to let you know that the letters were not found. The Filter button is grayed-out if you select a list of configurations or templates. Filter only works on lists of attributes.
Case Sensitive Button	Click on this button to specify whether the search or filter operations should be case sensitive. Case sensitivity is ON when the button appears indented.

Window View — Shared or Device Specific

You can display two ECM windows — Main and Configurations — in either Shared Configurations or Device Specific Configurations window.

If you want to change the view, select the appropriate option — Shared Configurations or Device Specific Configurations — from the View menu, as shown in [Figure 2-14](#).

Figure 2-14. Changing from Shared to Device Specific Window



View Function

You should always be aware of the window in which you are working. For example, you cannot load a configuration to multiple devices if the ECM Main window is in the Device Specific window. Before performing ECM operations, check the title bar of the window to see whether you are in Shared or Device Specific window:

- When the ECM Main window is in Shared Configurations window, you can view, verify and load shared configurations in the selected landscape(s). Shared configurations are available to all devices of the same type as the selected device. By default, ECM displays windows in the Shared window.
- When the ECM Main window is in Device Specific window, you can only view, verify, and load the configurations that are specific to the selected type of device.



Once you select the window view in the ECM Main window, this view applies to both the ECM Main and Configurations windows. However, if you change the view in the Configurations window, that view becomes independent of the view in the Main window. In either window, you can select the view.

Quick-Access PoP-Up Menus

Some ECM windows, including the Main window, have menu short cuts that eliminate the need to reposition the mouse pointer to select an option.

To access a menu short cut, press the right mouse button within the window's main dialog area. This displays a popup menu listing some commonly used options available from that window's menu bar.

All the Main window menu options are described in the following sections.

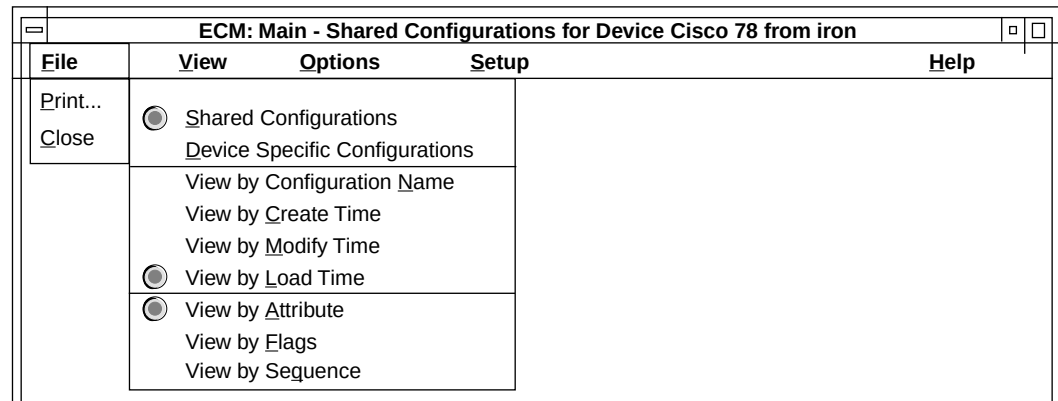
Pull-Down Menus & Buttons

The ECM Main window contains five pull-down menus: File, View, Options, Setup, and Help. You can access the options in these menus by clicking on the option or using the accelerator key shortcuts — holding down the **Alt** key and pressing the letter key corresponding to the underlined letter in the menu name in the menu bar to open the desired menu, and then (with the **Alt** key released) pressing the letter key corresponding to the applicable underlined letter in the option label to select a desired option.

ECM also has buttons for some of the options in the Options menu. To identify any button in the tool bar, hold the mouse pointer over the button for a second. A yellow label will appear below the button, identifying it.

File & View Menus

[Figure 2-15](#) shows the File and View menus of the ECM Main window as they would appear if they could both be active at the same time. [Table 2-5](#) describes the functions of the File menu options. [Table 2-6](#) describes the functions of the View menu options.

Figure 2-15. File and View Menus in the ECM Main Window**Table 2-5. File Menu Options and Their Functions**

Option	Function
Print	Select the Print option to print the configuration selected in the Configuration Name list. When you select Print, a Printer dialog box appears where you specify the name of the printer and the printer type: either ASCII or PostScript.
Close	Select Close to close the ECM Main window. If the window is the last ECM window open, ECM displays a message box asking you if you want to exit from ECM.

Table 2-6. View Menu Options and Their Functions

Option	Function
Shared Configurations	Click on the Shared Configurations option to display shared configurations. A round button, shown in its recessed (active) state, appears in front of the window type you have selected.
Device Specific Configurations	Click on Device Specific Configurations to display device specific configurations. A round button, shown in its recessed (active) state, appears in front of the window type you have selected.

Table 2-6. View Menu Options and Their Functions (Continued)

Option	Function
Sort Options	Click on the various View options to sort the configurations listed in the Configurations field: either by Name (alphabetically), Create Time , Modify Time , Load Time , Attribute , Flags , or Sequence . In the Main window, the View by Sequence option displays the sequence in which attributes are loaded. In the Configurations window, this same option allows you to put attributes in a specific order when creating a configuration.

Options Menu and Associated Tool Bar Buttons

Figure 2-16 shows the Option menu of the ECM Main window. Table 2-7 describes the functions of the Option menu options and identifies the tool bar buttons associated with those option selections.

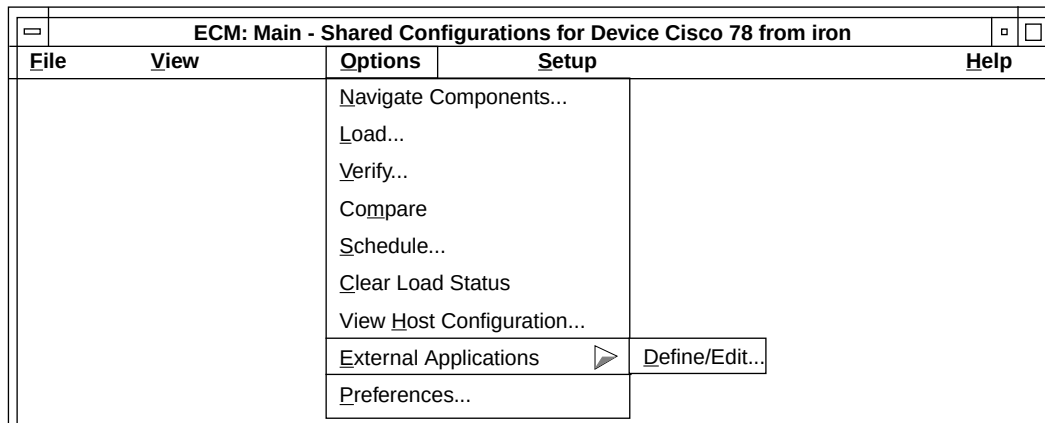
Figure 2-16. Option Menu Options for the ECM Main Window

Table 2-7. Options Menu and Tool Bar Button Functions

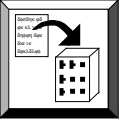
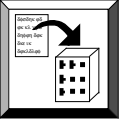
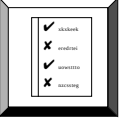
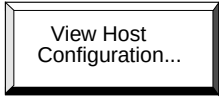
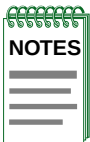
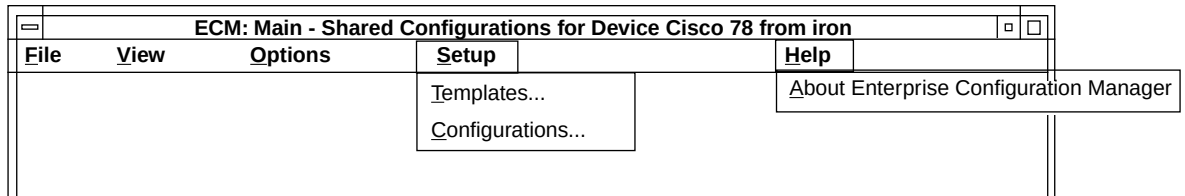
Option/Button	Function
Navigate Components... 	Opens the Components dialog box where you see all the components of the device you selected in SpectroGRAPH. If your device is a hub, for example, you see the applications, interfaces, and boards in the hub and also the sub-components of the boards and applications. The sub-components could include ports and secondary applications.
Load... 	Loads the selected configuration(s) to the selected device(s) or component(s). When you click on Load, ECM asks you to confirm the load. See Chapter 5 for details.
Verify... 	Verifies the configuration of the selected device(s) or component(s). When you select Verify, ECM asks you to confirm the verification. See Chapter 6 for details.
Compare... 	Compares two configurations. To compare two configurations: hold down the CONTROL key and select two configurations from the Configurations list. Then click on Compare. ECM prompts you for confirmation. If you answer “Yes,” ECM displays the attributes from both configurations in a Comparison Detail window. You can also view the two host configurations, if available, in another Comparison Detail window. See the section Comparing Two Configurations in Chapter 4 for details.
Schedule... 	Opens the Scheduler dialog box where you can schedule the time and frequency of an automatic load, verification, or configuration capture. See Chapter 8 for details.
Clear Load Status 	Enables you to clear a configuration's former load status and to display its current load status, in case other configurations changed its status. For example, loading a new configuration onto a device does not automatically remove the load status display of the previous configuration. The status could be updated from Fully Loaded (L) to Partially Loaded (P), or from Rolled Back (R) to Not Loaded (N). The Clear Load Status button does not “unload” a configuration. It just updates its status. See Chapter 5 for more details.

Table 2-7. Options Menu and Tool Bar Button Functions (Continued)

Option/Button	Function
View Host Configuration... 	Displays the host configuration. If the letters on the button/option are visible, the configuration includes the Cisco host configuration. If the letters are grayed-out, the selected configuration does not include the host configuration. ECM displays this option only if your device is a Cisco router and if the Cisco router's device type is included in the CISCO_MTYPES file. See Special Features for Cisco Routers in Chapter 1.
External Apps	Gives you access to applications external to ECM when in ECM. When you click on External Apps and then select the Define/Edit option, the External Application window appears. This window enables you to create options for the External Apps menu. You can use the menu options that you create to launch internal or external applications from ECM. See Chapter 9 for more details.
Preferences... 	Allows you to define preferences for the current ECM session such as: • Landscapes for locating configurations, templates, and devices. • Save and Load settings. • Attribute flag settings. • Search. • <i>If you installed ECM with a custom installation, you defined the default values for the Landscape, Save, Safe Load, and attribute flag settings at installation.</i> • <i>If you installed ECM with an auto install, ECM assigns certain default values to the Landscape parameter. As a result, you may need to define these defaults in the Preferences window when you first invoke ECM. Then, to make the changes permanent, you must modify the ECM resource file, Ecm. See Appendix B for details.</i>

Options Menu and Associated Tool Bar Buttons

[Figure 2-16](#) shows the Setup and Help menus of the ECM Main window as they would look if they could both be active at the same time. [Table 2-7](#) describes the functions of the Option menu options and identifies the tool bar buttons associated with those option selections.

Figure 2-17. Setup & Help Menus**Table 2-8. Setup and Help Menu Options**

Menu	Option	Function
Setup	Templates	Opens the Template window where you create, edit, delete, save, print, import, and export templates. See Chapter 3 for details.
	Configurations	Opens the Configurations window where you create, edit, delete, save, print, import, and export configurations. The Configurations window also allows you to convert configurations into templates, capture configurations using templates, and schedule automatic captures. See Chapter 4 for details.
Help	About ECM	Displays the version number of your Enterprise Configuration Manager.

Tips for Working with ECM Windows

If you are new to using ECM, the following tips can help you. The numbers in [Figure 2-18](#) correspond to the number identifying the associated tip.

Viewing button labels

1. Hold the mouse pointer over a button for about one second so that the yellow button label, identifying the button, appears below the button.

Resizing configurations and attribute lists

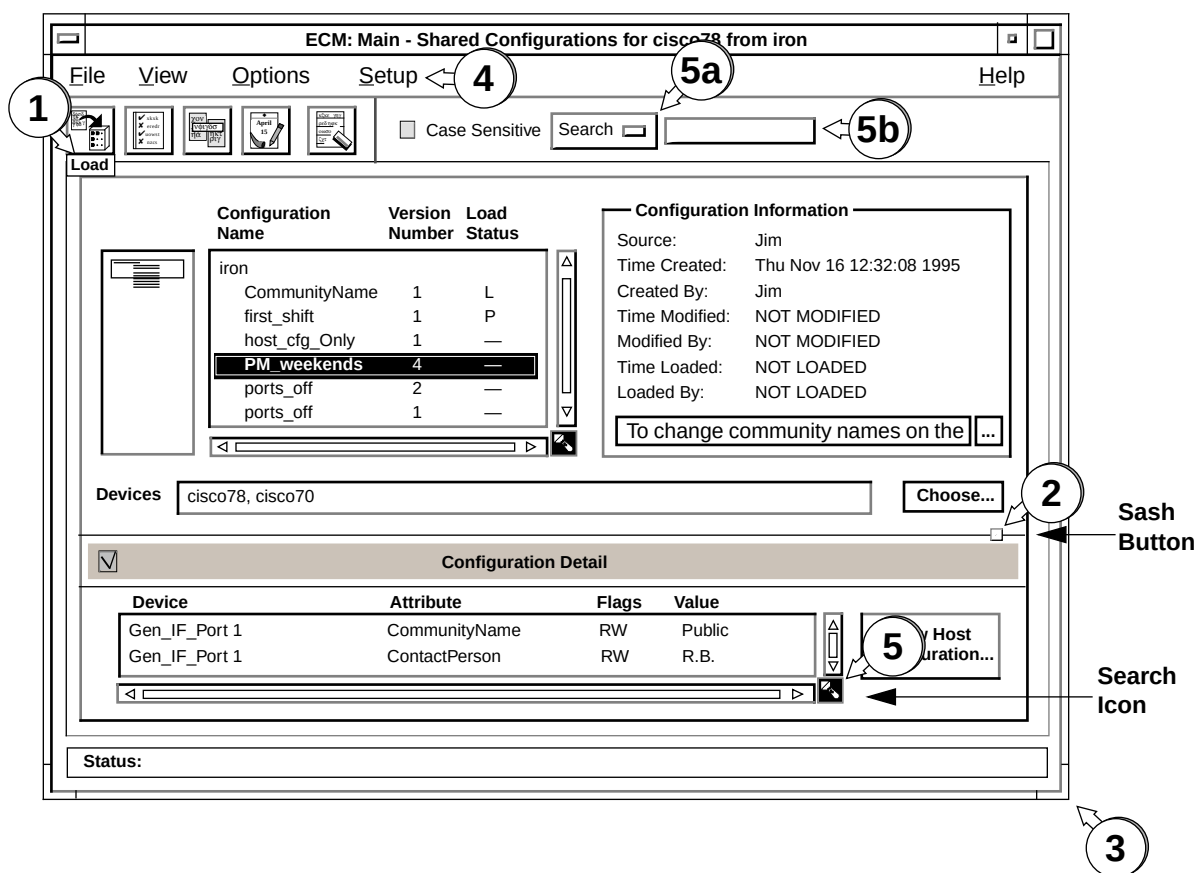
2. Drag downward on the Sash Button to resize the upper panel of the window.

If you create a long list of configurations, you may want to enlarge the upper part of the window so that you can view the list more easily. After you enlarge the panel, drag the Sash button upward to return the panel to its original size.

3. Drag on the bottom edge (or corner) of the Main window to resize the lower panel of the window.

When you want to view many attributes in the attribute list, you may need to expand this section of the window. Drag the edge back up so you completely hide the lower panel.

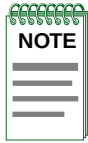
Figure 2-18. Working with ECM Windows



Using Keyboard Shortcuts

In ECM windows, notice that the names of menus and menu options have one letter underlined. This is the letter you type either alone or as part of the key sequence. You can use lower or upper cases letters. To pull down a menu, hold down the Alt key and then press key corresponding to the

appropriate underlined letter in the menu name. Then, to select a menu option, simply press the key corresponding to the appropriate underlined letter in the option label.



If the **ALT**-enabled sequence does not open the pull-down menu, check the documentation for your particular keyboard to determine whether a different key has been coded to perform this Meta function on your keyboard.

4. Try the following keystrokes:
 - To pull down the Setup menu, type: **<Alt> + s**.
 - To open the Configurations window, with the Setup menu open, type: **c**.
 - To pull down the File menu in the resulting Configurations window, type: **<Alt> + f**.
 - To close the Configurations window, with the File menu open, type: **c**.
 - Note that you could have bypassed both of the last two steps by using the **<Alt> + <F4>** combination while in the Configurations window.

Searching Through Lists

5. Click on the Search icon to highlight the section that it points to and then search the configurations or attributes list displayed in that section.

When you click on the Search icon (the little flashlight), the border of the field next to it and the text field next to the Search button become highlighted in yellow. Once you have created configurations, you can use the Search icon and the Search button to quickly locate specific configurations or attributes.

To perform a search, follow these steps:

- a. After you click on the Search icon next to the list that you want to search, click on the Search button so that it is visible.
- b. Then type the first few letters of the configuration or attribute name in the text field next to the button.

ECM quickly scrolls to that area in the list. Notice that the one Search text field works for the multiple Search icons. Remember that ECM searches in the field that is highlighted in yellow. Refer to [Search/Filter Section and Search Icon](#) on Page 2-19 for more information about these functions.

Selecting One or Multiple Items at a Time

ECM allows you to use single-selection or multi-selection methods to select attributes, configurations, templates, or devices that occur in lists.

The multi-selection methods make it easy to add many attributes to a configuration or to quickly delete configurations. You also have to use multi-selection to select two configurations for the Compare operation:

- **Single Selection** — When you click the left mouse button on an unselected entry, you select the entry and deselect any other selected entries. As a result, only one entry can be selected at a time.
- **Multiple Selection** — There are three ways to select multiple entries at one time:
 - You can press the left mouse button and drag the cursor over any number of unselected, contiguous entries.
 - You can hold down the CONTROL key and click on unselected, discontinuous entries. The CONTROL key ensures that the previously selected entries remain selected and toggles on or off the entry that you are currently selecting.
 - You can make a selection, hold down the SHIFT key, and click on the last continuous item in a list to select all the items, beginning from the first selected.

Follow these steps to experiment with the various selection methods:

6. Press the left mouse button and drag the cursor over a few, unselected entries in a list.
7. Hold down the CONTROL key and select discontinuous, unselected entries.
8. Continue holding down the CONTROL key and select a selected entry.
9. When you have selected several entries, click on an entry to see how the single selection method affects the other selected entries.

Quick-Access PoP-Up Menus

To access a menu short cut, press the right mouse button within the window's main dialog area.



Chapter 3

Creating and Managing Templates

This chapter shows how to create, edit, save, delete, and print templates.

In This Chapter

- *When to Use Templates*
Why use templates.
- *Accessing the Templates View*
How to access templates.
- *Templates View*
Features of the Templates view.
- *Creating a New Template*
How to create a template.
- *Editing a Template*
How to edit a template.
- *Creating a Template from a Configuration*
How to create a template from a configuration.
- *Deleting a Template*
How to delete a template.
- *Printing a Template*
How to print a template.
- *Special Options for Cisco Router Templates*
How to create a template for a Cisco router.

When to Use Templates

When you work with Enterprise Configuration Manager (ECM) you can create configurations with templates and without templates. In both processes ECM captures attribute values, flags, and instance IDs, if any, from the device. Even though both processes are similar, you need to use templates at certain times.

Templates are *convenient* in these situations:

- To create configurations quickly. Creating a library of templates provides administrators with an efficient way to create configurations.
- To delegate network responsibilities. The expert can create the templates; the day-to-day administrator can use the templates to capture configurations.

Templates are *necessary* in these situations:

- To capture the host configuration of a Cisco router.
- To perform automatic captures with the Scheduler.

Accessing the Templates View

Follow these steps to access the Templates view:

1. Select the device or sub-component of the device for which you want to create a template in SpectroGRAPH or the ECM Components dialog box.
2. Open the ECM Main view.

The title bar of the ECM Main view should include the name of the device that you selected.

3. In the ECM Main view, click on the **Templates** option under the Setup menu.

The Templates view appears. (See [Figure 3-1.](#))

Templates View

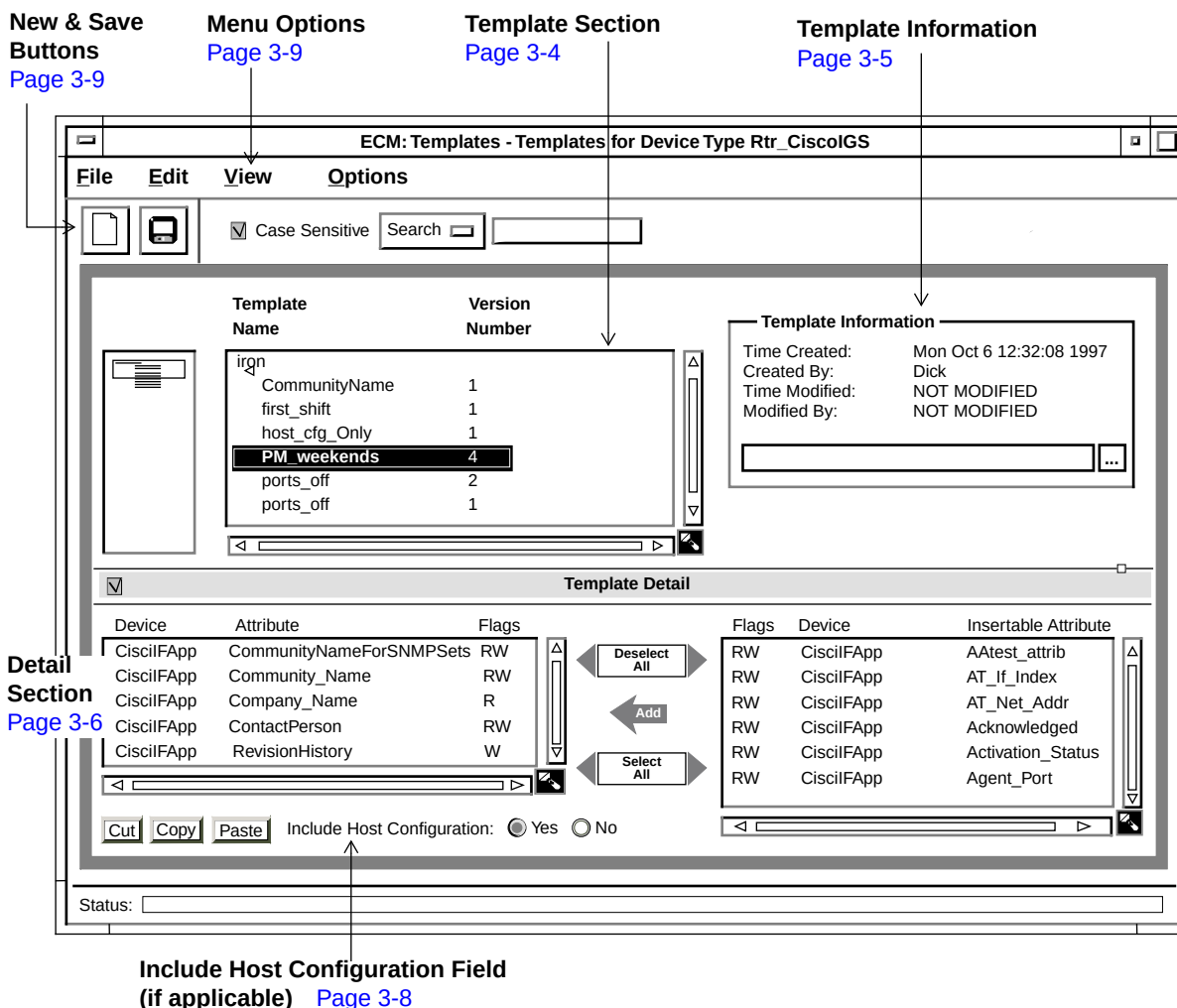
The Templates view enables you to:

- Create templates from the list of attributes of the device type.
- Edit templates by adding and cutting attributes.
- Copy, save, delete, and print templates.

- Import and export templates (refer to [Chapter 7](#)).

The Templates view is similar to the ECM Main view except that it provides information about templates rather than configurations. This chapter describes the features that are *unique* to the Templates view —specifically, the menu options, buttons, Template and Detail sections, and the Include Host Configuration field.

Figure 3-1. Templates View



Template Section

Figure 3-2 identifies the major components making up the Template Sections area. Table 3-1 provides descriptions explaining the purpose and use of each such component.

Figure 3-2. Template Section Details

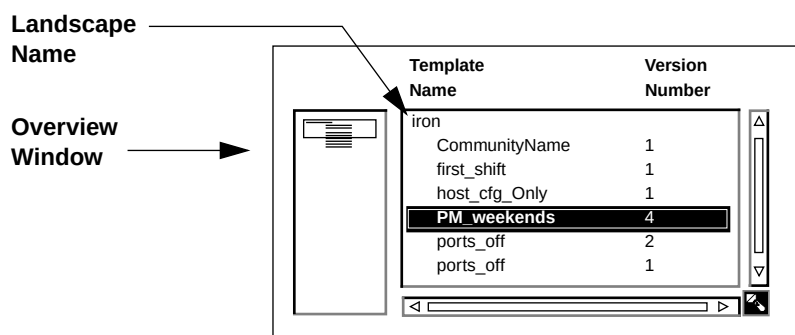


Table 3-1. Function of Template Section Components

Field	Function
Overview Window	Helps you see exactly where you are when you scroll through the Template list. Notice that as you scroll down the list, the rectangular box in the Overview window also moves downward. The rectangular box outlines the templates that are currently displayed in the Template Section.
Landscape Name Scroll List	In the Template list, landscape names appear flush left above the templates that are stored on them. A red landscape name indicates that the SpectroSERVER has lost its connection to the landscape. You can change the way landscapes are displayed for the current session in the Preferences window or permanently in the ECM resource file.
Template Name	Names of templates that have been created for devices of the same type as the device you selected in SpectroGRAPH or in the ECM Components dialog box. Templates appear indented under the landscape where they are stored. If the Auto Expand Landscapes option is OFF, the list is collapsed—only landscape names are visible. In this case, you have to double click on the landscape name to view the templates stored there. You can change the Auto Expand Landscapes option for the current session in the Preferences window or permanently in the ECM resource file.

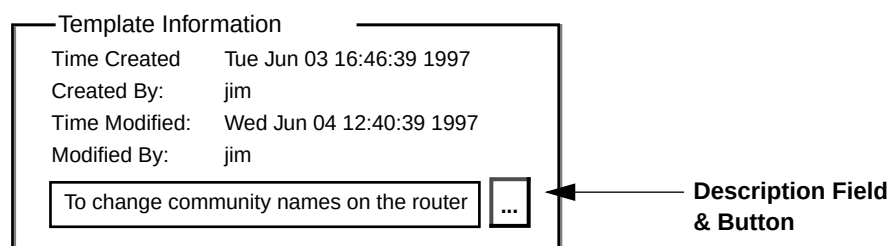
Table 3-1. Function of Template Section Components (Continued)

Field	Function
Version Number	Helps you track the modifications of templates. When you modify an existing template and then click on Save, ECM always increments the version number of the template regardless of whether you are overwriting the existing template or creating a new template. If you specify that Save should overwrite the existing template, ECM overwrites the template but still increments the version number. If you specify that Save should create a new template, ECM creates a new template and increments the version number (while preserving the previous version). Version numbers begin at 1.

Template Information Section

Figure 3-3 identifies the major components making up the Template Information Sections area. Table 3-2 provides descriptions explaining the purpose and use of each such component.

Figure 3-3. Details of Template Information Section



The Template Information section contains historical information about the selected template. This section contains information similar to that in the Configuration Information section, as described in the following table.

Table 3-2. Function of Fields in Template Information Section

Field	Function
Time Created Time Modified	These fields contain the last date and time the template was created and modified. If the template has not been modified, the Time Modified field says Not MODIFIED .
Created By Modified By	These fields contain the login name of the person who created or modified the template. If the template has not been modified, the Modified By field says NOT MODIFIED .
Description Field	This field contains comments entered by users. To view the complete text, click on the button to the right of the field. This opens a Description dialog box. Because the ECM Main view is a view window, you cannot edit or enter text in the Description dialog box if you open it from that view. To edit or enter text, open the Description dialog box from the Templates view.

Template Detail Section of the Templates View

Figure 3-4 identifies the components making up the Template Detail area. Table 3-3 provides descriptions explaining the purpose and use of each such component.

Figure 3-4. Components in the Template Detail Section

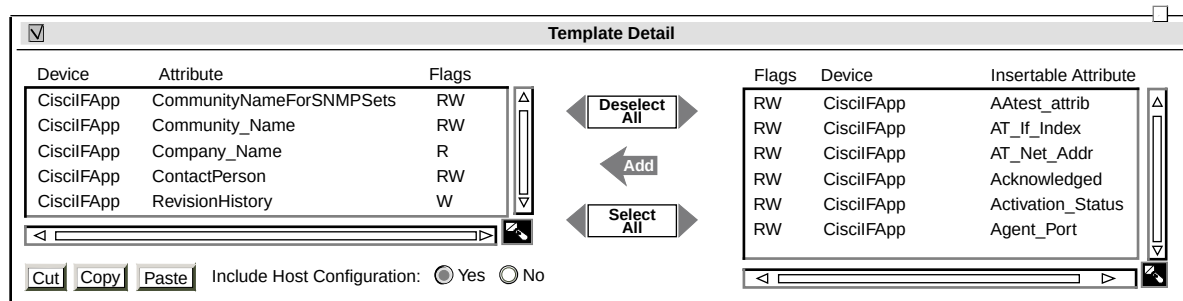


Table 3-3. Function of Components in Template Detail Section

Field/Button	Function
Template Detail label	The Template Detail label itself constitutes an on/off selector, showing a conventional check box radio button at its left end (actuated by clicking anywhere in the shaded portion of the label area). When this button is recessed, the window shows attribute details of the selected template, along with the insertable attribute list details. When this button is raised, both scroll lists in the Template Details section are empty.
Device List	Contains all the subcomponents of the selected device. These can be applications, boards, interfaces, and so on.
Attribute List	Contains the attributes with their flags that are in the selected template. If you are creating a new template, there are no attributes in the list. You must select attributes from the Insertable Attribute list and add them to it.
Flags List	Indicates whether an attribute is readable, writable, and so on. The flags are R, W, or RW. You can sort and filter the attributes based on their flags.
Insertable Attribute List	Contains all readable/writable and non shared attributes for the devices of this type. Select the attributes for your template from this list.
Select All, Add, and Deselect All Buttons	Enable you to create a template. Add inserts any selected attribute(s), together with the associated flag and device entries, moving the attribute(s) from the Insertable Attribute list on the right into the Attribute list on the left. Use the Deselect All button before you begin selecting attributes so that you do not inadvertently move selected attributes that are hidden from view. Use the Select All button when you want to select all the attributes from one list or the other. The latter two buttons are double-sided; click the pointer on the left end to affect entries in the Attribute list, click the pointer on the right end to affect entries in the Insertable Attribute list.

Table 3-3. Function of Components in Template Detail Section (Continued)

Field/Button	Function
Include Host Configuration Field	Has two functions: (1) shows you whether the selected template will capture the host configuration, and (2) enables you to create templates that will capture the host configuration. To do the latter, select the template name; then click on the Yes button in the Include Host Configuration field and save the template. Remember that you can only capture the host configuration with a template. You cannot capture the host configuration when you create configurations manually. ECM only displays the Include Host Configuration field if your device is a Cisco router <i>and</i> the CISCO_MTYPEES file includes your Cisco router's device type. See Special Features for Cisco Routers in Chapter 1 for more details about the CISCO_MTYPEES file.
Cut Button	Removes any currently selected (highlighted) entry or entries in the Template Detail scroll list, returning them to the Insertable Attribute list. You can use the Ctrl+X keyboard shortcut in place of this Cut selection; alternatively, you can accomplish the same result by clicking on the Edit > Cut option from the menu bar.
Copy Button	Copies any currently selected (highlighted) entry or entries in the Template Detail scroll list, storing the copied material until the Paste function is used. You can use this function to make a copy of one or more entries currently used in a given template, so that you can then use the associated Paste function to place the copied elements in another template. You can use the Ctrl+C keyboard shortcut in place of this Copy selection; alternatively, you can accomplish the same result by clicking on the Edit > Copy option from the menu bar.
Paste Button	Places in the Template Detail scroll list a copy of whatever was last selected with the Copy function. You can use this function to copy elements from one template to another. You can use the Ctrl+V keyboard shortcut in place of this Paste option, or you can accomplish the same result by clicking on the Edit > Paste option from the tool bar.

File Menu Options & Associated Buttons

Figure 3-5 identifies the options in the Template View's File Menu. Table 3-4 provides descriptions explaining the purpose and use of each option.

Figure 3-5. File Menu Options for Templates View

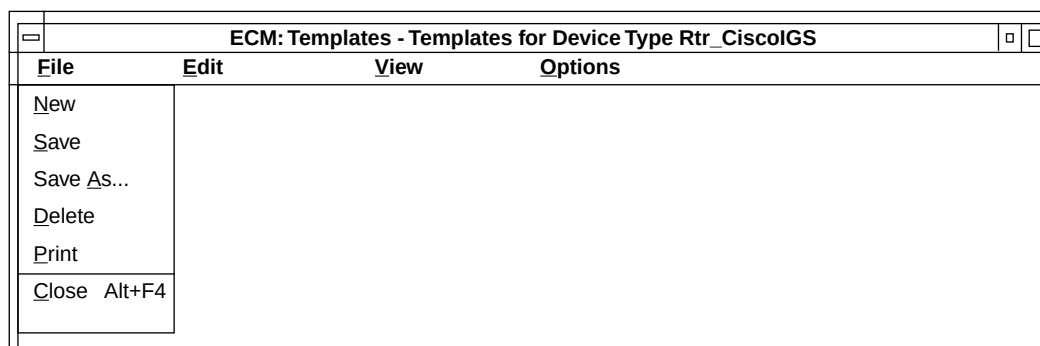


Table 3-4. Function of File Menu Options and Associated Tool Bar Buttons

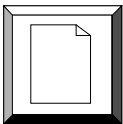
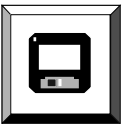
Option/ Button	Function
New 	Creates a new template. When you click on New , ECM adds the name <UNTITLED> to the Template list. You can then select attributes for the untitled template. When you use the Save As... option, you give the untitled template a name. You can also obtain the same result by clicking on the New button in the tool bar, as illustrated to the left. (To identify the button, just hold the mouse pointer over the button for a second. The button name will appear below the button.)
Save 	Saves a template that has been modified with its same name and its same landscape location. ECM will always increment the version number, however. You can also obtain the same result by clicking on the Save button in the tool bar, as illustrated to the left. Both the Save option in the File menu and the Save button in the tool bar are grayed out if you are creating a new template, because you must use the Save As... option to name and save the new template. You can specify Save options in the Preferences window and the resource file; these options let you overwrite the existing template or create a new template (thus preserving the previous version). See Specifying ECM Preferences/Settings in Chapter 2.
Save As...	Names a new template, renames an existing template, or saves a template to a new landscape.
Delete	Deletes template currently selected (highlighted) in Template section.

Table 3-4. Function of File Menu Options and Associated Tool Bar Buttons (Continued)

Option/ Button	Function
<u>P</u>rint	Prints the selected template. Specify the printer name and type in the Printer dialog box that appears.
<u>C</u>lose	Closes the Templates view.

Edit, View, and Options Menus

Figure 3-6 identifies the options available in the Edit, View, and Options menus as they would appear if all three could be displayed at once. Table 3-5 provides descriptions explaining the purpose and use of each option.

Figure 3-6. Edit, View, and Options Menus of Template View

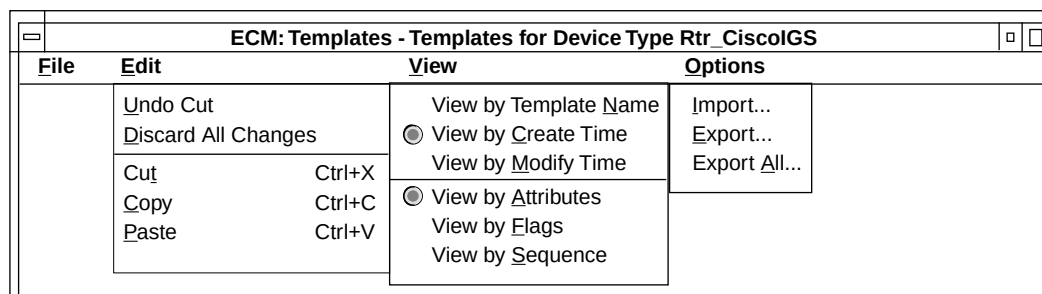


Table 3-5. Function of Edit/View/Options Selections

Option	Function
<u>U</u>ndo Cut	Used after a Cut operation, restores to the Template Detail scroll list the entry or entries that had been removed by that previous Cut operation.
<u>D</u>iscard All <u>C</u>hanges	Discards the inprocess <UNTITLED> template and brings up the list of existing templates.

Table 3-5. Function of Edit/View/Options Selections (Continued)

Option	Function
Cut Ctrl+X	Removes any currently selected (highlighted) entry or entries in the Template Detail scroll list, returning them to the Insertable Attribute list. You can use the Ctrl+X keyboard shortcut in place of this Edit > Cut option; alternatively, you can accomplish the same result by clicking on the Cut button in the lower left corner of the view.
Copy Ctrl+C	Copies any currently selected (highlighted) entry or entries in the Template Detail scroll list, storing the copied material until the Paste function is used. You can use this function to make a copy of one or more entries currently used in a given template, so that you can then use the associated Paste function to place the copied elements in another template. You can use the Ctrl+C keyboard shortcut in place of this Edit > Copy option; alternatively, you can accomplish the same result by clicking on the Copy button in the lower left corner of the view.
Paste Ctrl+V	Places in the Template Detail scroll list a copy of whatever was last selected with the Copy function or whatever was last deleted with the Cut function. You can use this function to copy elements from one template to another or to paste the details cut/copied from one template to another. You can use the Ctrl+V keyboard shortcut in place of this Edit > Paste option; alternatively, you can accomplish the same result by clicking on the Paste button in the lower left corner of the view.
View Options	Rearranges the templates listed in the Templates view in a specific way — by Name (alphabetically), by Create Time , or by Modify Time , with a secondary alphabetical sort order being by Attribute , by Flags or by Sequence . Your selection determines the order of arrangement only for the current session. The default viewing order is View by Create Time and View by Attribute , as shown above.
Import... Export... Export All...	Let you import and export the templates that you create in ECM. Chapter 7 describes the Import/Export options in detail.

Creating a New Template

Overview

The ECM Templates view provides you with a list of attributes that you use to create templates. Specifically, the attribute list includes all the readable/writable and non shared attributes for the selected type of device.

When you use the template to capture a configuration, ECM captures the values of the attributes specified in the template and includes the captured attribute/value pairs in the new configuration. If available, ECM also captures all instances of an attribute.

Procedure

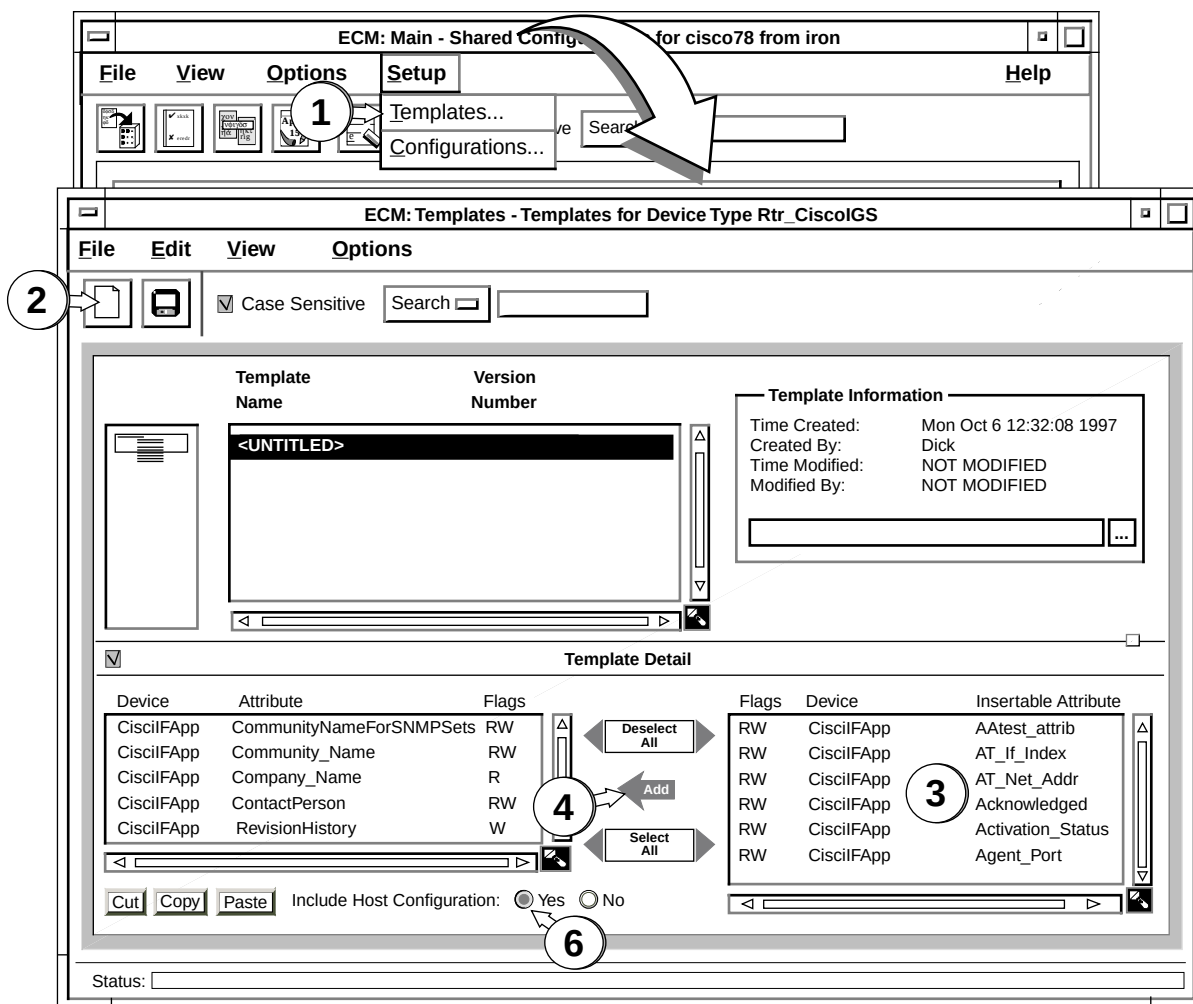
To create a new template, follow these procedures (refer to [Figure 3-7](#)):

1. Open the Templates view by selecting **Setup, Templates** from the ECM Main view menu bar.



2. In the Templates view, select the **New** button or File, New from the menu bar.

The new template, named **<UNTITLED>**, appears highlighted in the **Template Name** field and *all* the readable, writable, and non-shared *attributes* for this *device type* (not just those of the specific device selected) appear in the Insertable Attribute field.

Figure 3-7. Creating a Template

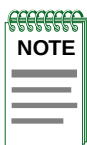
3. Select the desired attributes in the following ways:

- To select all attributes at once, click on the right side of the **Select All** button.
- To select a specific attribute, click on the desired attribute in the Insertable Attribute scroll list.
- To select any desired specific combination of attributes, click on each desired attribute in the Insertable Attribute scroll list in sequence, while holding the Control key down. (If you click on an incorrect attribute by error or change your mind after selecting one, you can deselect the one(s) you do not want to include by clicking on the undesired attribute(s) again.)

4. Click on the **Add** button.

ECM moves the selected attribute(s), with their flags, to the Attribute field. As a result, the Insertable Attribute field following this operation contains only those attributes that have *not* been added to the template.

5. If you want to remove attributes from the Attribute list at any time after completing the previous Add function, proceed as follows:
 - Begin by clicking on the left side of the **Deselect All** button to deselect all attributes in the left-hand Attribute scroll list. (This is important, because selected attributes may be hidden from view, beyond the range of attributes displayed in the window.)
 - To remove all attributes at once, click on the left side of the **Select All** button.
 - To remove a specific attribute, click on the desired attribute in the Attribute scroll list.
 - To remove any desired specific combination of attributes, click on each undesired attribute in the Attribute scroll list in sequence, while holding the Control key down. (If you click on an incorrect attribute by error or change your mind after selecting one, you can deselect the one(s) you do not want to remove by clicking on the attribute(s) again.)
 - After selecting (highlighting) the attribute(s) you want to remove, click on the **Cut** button in the lower left corner.
6. If you are creating a template for a Cisco router and you want to capture the host configuration, select **Yes** in the Include Host Configuration field (only displayed when working with Cisco routers).

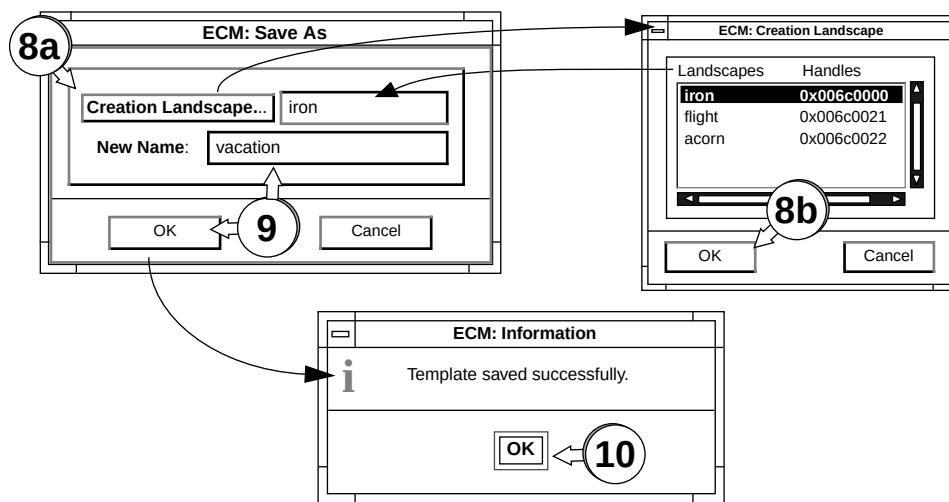


You can create templates for configurations that require some attributes to be configured before other attributes. If you create multiple templates and then multiple configurations for a single device, you can load the configurations to the device in the required order.

7. When you have finished, click on the **Save As** option in the File menu.

The Save option is grayed-out because this is a new template that needs a name. When you modify a template, the Save option will be available to you.

When you click on Save As, the Save As dialog box appears. See [Figure 3-8](#).

Figure 3-8. Saving the New Template

8. Make sure the Creation Landscape field specifies the landscape where you want to store the template. If you want to store the template elsewhere, follow these steps:

- a. In the Save As dialog box, click on the **Creation Landscape** button to bring up the Creation Landscape dialog box.

The Creation Landscape dialog box lists those landscapes that are visible to the SpectroSERVER.

- b. In the Creation Landscape dialog box, select the new landscape and click on **OK**. The new landscape name now appears in the Save As dialog box.

9. Type the template name in the name field of the Save As dialog box. Then click on **OK** (or press the **Return** key) to close the dialog box.

ECM displays a message box that says, "Template saved successfully."

10. Click **OK** in the message box.

The Templates view now contains the new template name in the Template Name field, the list of attributes with their flags in the Attribute field, and the relevant information in the Time Created, Time Modified, and Created By fields. This template will appear in the template list for every device of this type.

Editing a Template

Once you have created templates, you can edit the templates by adding or cutting attributes.

Follow these steps to edit your template:

1. Select the template that you want to edit in the Templates view.

The Attribute field now displays all the attributes in that template. If you are working with a Cisco router device, the Yes/No buttons in the Include Host Configuration field indicate whether the template includes the host configuration.

2. Edit the attributes in the following ways:
 - To add one or more new attributes to the template, select the attribute(s) in the Insert Attribute field and then click on the **Add** button. (To undo the Add, click on the **Cut** button before you deselect the attributes.)
 - To delete one or more attributes from the Attribute list, select the attribute(s) you want to remove in the Attribute list and click on the **Cut** button. (To undo the Delete, click on the **Add** button before you deselect the attributes.)
 - To select multiple attributes at one time, hold down the CONTROL key and click on discontinuous entries. Or drag the cursor over contiguous entries.
 - Use the **Deselect All** button after each time you add and cut attributes. If you don't, you may inadvertently add or cut attributes because selected attributes are often hidden from view.
 - To add or delete the host configuration, select the appropriate radio button — either **Yes** or **No** — in the Include Host Configuration field.
 - To discard the <UNTITLED> template and bring up the list of existing templates again, click on the **Discard All Changes** option in the Edit menu.
3. When you are finished editing, select the **Save** or **Save As** option in the File menu.

Save replaces the old template with the edited version, keeping the same template name and landscape location. Save As saves the edited template with a new name and, if desired, a new landscape location.
4. After you save the template, ECM displays the message box, "Template saved successfully." Click **OK** in the message box.

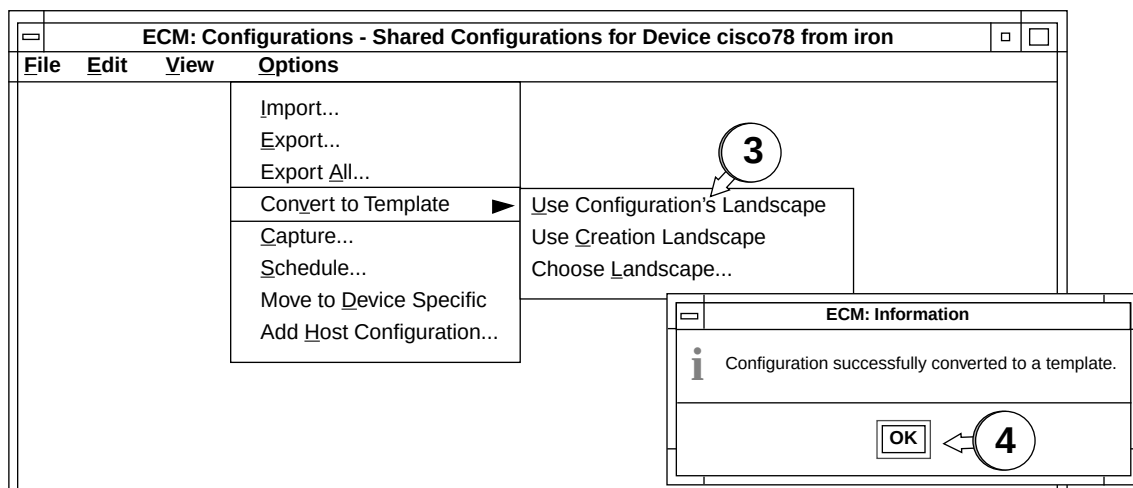
Creating a Template from a Configuration

You can also create a template from an existing configuration. The Convert to Template option located in the Options menu of the Configurations view allows you to do this. When you use this option, ECM takes the attributes listed in the configuration, creates a template from them, and gives the template the same name as the configuration. Then ECM saves the template to the landscape that you specify.

To create a template from a configuration, follow these steps:

1. From the Main view, select the **Setup > Configurations...** option.
2. In the Configurations view, select the configuration you want to use.
3. Click on the **Options > Convert to Template** option and then select the appropriate submenu option to specify the landscape where the template will be saved (refer to [Figure 3-9](#)).
 - **Use Configuration's Landscape** saves the template to the landscape where the original configuration is stored.
 - **Use Creation Landscape** saves the template to the creation landscape specified in the resource file. (This is the landscape displayed when you use Save or Save As.)
 - **Choose Landscape** opens the Creation Landscape dialog box where you choose a landscape for the current session. (This landscape becomes the Save and Save As default landscape.)

Figure 3-9. Converting a Configuration to a Template



ECM converts the configuration to a template and displays an ECM Information message box notifying you that the task has been completed.

4. Click on **OK** in the message box.
5. Click on **File, Close** to close the Configurations view.

When you open the Templates view again, you can see the template listed under the landscape that you specified. The template has the same name as the configuration.

Deleting a Template

To delete one or more templates:

1. Select the templates you want to delete. To select multiple entries, hold down the **CONTROL** key while you click on entries.
2. Click on the **Delete** option in the File menu.

ECM displays a message box asking you to confirm the deletion.

3. Click on **OK** in the message box.

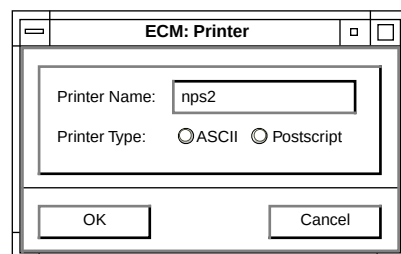
Printing a Template

If you need to keep a copy of the template for your records, ECM gives you the option of printing templates. Follow these procedures:

1. In the Templates view, select the template name.
2. Click on **Print** in the File menu.

A Printer dialog box, similar to that in [Figure 3-10](#), appears.

Figure 3-10. The Printer Dialog Box



- Specify the name of your printer and the printer type — either ASCII or PostScript — and confirm your selection by clicking on **OK**. (The order of these steps differs slightly depending on the machine that you are working with.)

You have to enter the printer name and type only once during an ECM session because ECM saves the information for the duration of the session. You can still change the printer name and type any time. (ECM takes the default printer name from the environment variable PRINTER.)

ECM sends the template to the printer.

Figure 3-11 illustrates a sample ECM template, as printed on a PostScript printer.

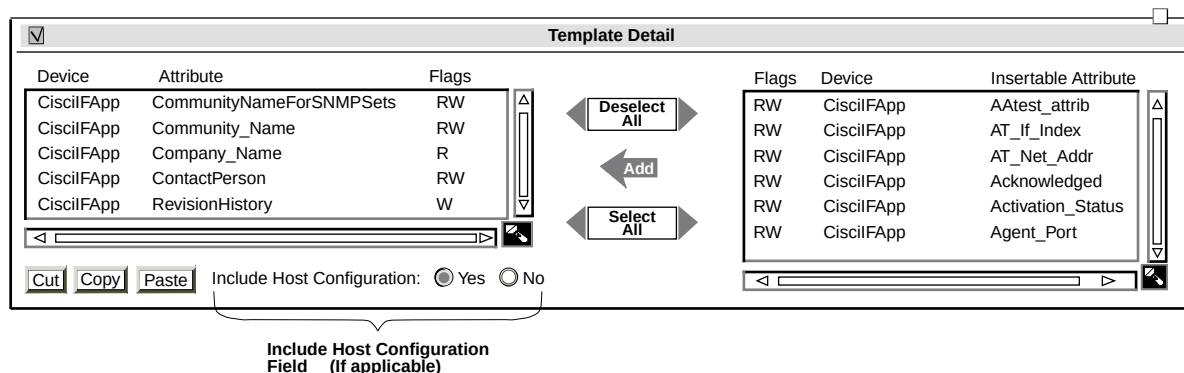
Figure 3-11. PostScript Printout of ECM Template

09:30 AM Wed Oct 15 1997 Enterprise Configuration Manager Page 1	
Attribute Listing for Template all_attrs_temp (ver. 4) from iron	
Device	Attribute
CiscoIFApp	AT_If_Index
CiscoIFApp	AT_Net_Addr
CiscoIFApp	AT_Phys_Addr
CiscoIFApp	Acknowledged
CiscoIFApp	Activation_Status
CiscoIFApp	Agent_Port
CiscoIFApp	Apps_Created_State
CiscoIFApp	Attr_Number
CiscoIFApp	AutoPlaceOffsetX
CiscoIFApp	AutoPlaceOffsetY
CiscoIFApp	AutoPlaceStartx
CiscoIFApp	AutoPlaceStarty
CiscoIFApp	BoardType
CiscoIFApp	Button_List
CiscoIFApp	Change_Stamp
CiscoIFApp	Child_Count
CiscoIFApp	Collected_By_List
CiscoIFApp	Community_Name
CiscoIFApp	Community_OID
CiscoIFApp	Composite_Condition
CiscoIFApp	Condition
CiscoIFApp	Condition_Value
CiscoIFApp	Connect_This_Model
CiscoIFApp	ConnectionPrec
CiscoIFApp	ContactPerson
CiscoIFApp	Contact_Status
CiscoIFApp	DataRelayCount
CiscoIFApp	Delta_IF_Total_Packets
CiscoIFApp	Desc_Key_Word
CiscoIFApp	Description
CiscoIFApp	DevCurrentAction
CiscoIFApp	Dev_Contact_Status
CiscoIFApp	Dev_View_Polling
CiscoIFApp	DeviceLocation
CiscoIFApp	DeviceType

Special Options for Cisco Router Templates

When you work with a Cisco router belonging to a device type listed in the CISCO_MTYPES file, the Templates view contains an additional field at the bottom called Include Host Configuration (see Figure 3-12). This field provides two functions. First, it enables you to specify whether you want to capture the Cisco host configuration with a new or edited template. Second, it also shows you whether existing templates will capture the Cisco host configuration. Notice when you click on a template name, either the Yes or No radio button in the Include Host Configuration field becomes highlighted. If the Yes button is highlighted, that template will capture the host configuration.

Figure 3-12. The Include Host Configuration Field in the Detail Section



When you create or edit a template for a Cisco router, remember these points:

- If you want the template to capture the host configuration, select the **Yes** button in the Include Host Configuration field of the Templates view. Otherwise, make sure the **No** button is selected.
- A Cisco router template can specify both attributes and the host configuration, or just attributes, or just the host configuration. If you want to capture only the host configuration, do not select any attributes in the Attribute field. Just select **Yes** in the Include Host Configuration field.
- When you print a template that includes the host configuration, the printout contains the words **<host configuration>** at the bottom of the attribute list.



It is important to note that you can capture the Cisco host configuration only with a template. You cannot manually capture it without a template. In this respect, the Cisco host configuration commands differ from attributes.



Chapter 4

Creating and Managing Configurations

This chapter shows you how to create, edit, compare, delete, and print configurations.

In this Chapter

- [*About Creating/Editing Configurations*](#)
Information you should know before starting to create and edit configurations.
- [*Why Create Configurations from Templates*](#)
When to use templates to create configurations.
- [*Why Create Configurations without Templates*](#)
When not to use templates to create configurations.
- [*Configurations Window*](#)
The window's function and the function of each of its parts.
- [*Creating a Configuration without a Template*](#)
How to create a configuration without a template.
- [*Creating a Configuration with a Template*](#)
How to create a configuration with a template.
- [*Editing a Configuration*](#)
How to edit a configuration.
- [*Comparing Two Configurations*](#)
How to compare two configurations.
- [*Deleting a Configuration*](#)
How to delete a configuration.
- [*Printing a Configuration*](#)
How to print a configuration file.

- [Creating and Editing the Cisco Host Configuration](#)
How to create and edit the Cisco Host Configuration file.
- [Viewing and Editing the Host Configuration Passwords](#)
How to view and edit Cisco Host Configuration passwords.

About Creating/Editing Configurations

You should know the following about creating or editing configurations in ECM:

- You must be in the Configurations window to create or edit a configuration.

To access the Configurations window from the ECM Main window, select Configurations from the Setup menu.
- You can create configurations for:
 - Devices
 - or
 - Components of devices
- You can select a device or a device component either in SpectroGRAPH or in ECM:
 - Once you select a device in SpectroGRAPH, you have access to all sub-components of that device and to all other devices of the same type in the selected landscape(s).

You do not have to exit ECM to create or edit configurations for devices of the same type or for sub-components of the selected device.
 - However, if you want to edit or create configurations for sub-components of another device (not the one selected in SpectroGRAPH), you have to exit ECM and select that device in SpectroGRAPH.
- You can configure an entire device with all its sub-components in one step or you can configure any sub-component separately.
- Configurations are of two types: device specific and shared.

The title bar of the ECM window tells you which type of configuration can be displayed in that window. To change the window, select the type of configuration you want from the View menu.
 - Device specific

If you are in device specific window when you create a configuration, the configuration will be device specific. Otherwise it will be shared.

To change a device specific configuration to a shared one, (1) select the configuration, and (2) from the Options menu, select Move to Shared.

- Shared among devices of the same type

If you are in shared view when you create a configuration, the configuration will be shared. Otherwise it will be device specific. To change a shared configuration to a device specific one, (1) select the configuration and from the Options menu, (2) select Move to Specific Device.

- You can create configurations in two ways:
 - With templates
 - Without templates

Although the processes seem similar, you will need to create configurations in both ways, depending on what operations you are going to perform with them.

Why Create Configurations from Templates

You must create configurations from templates for these reasons:

- To schedule automatic captures with the Scheduler.
- To capture the configuration of a Cisco host configuration.
- To make sure the configuration contains only those attribute/value pairs that can be retrieved from the device. If ECM cannot capture an attribute specified in the template, the attribute is not included in the configuration.

Why Create Configurations without Templates

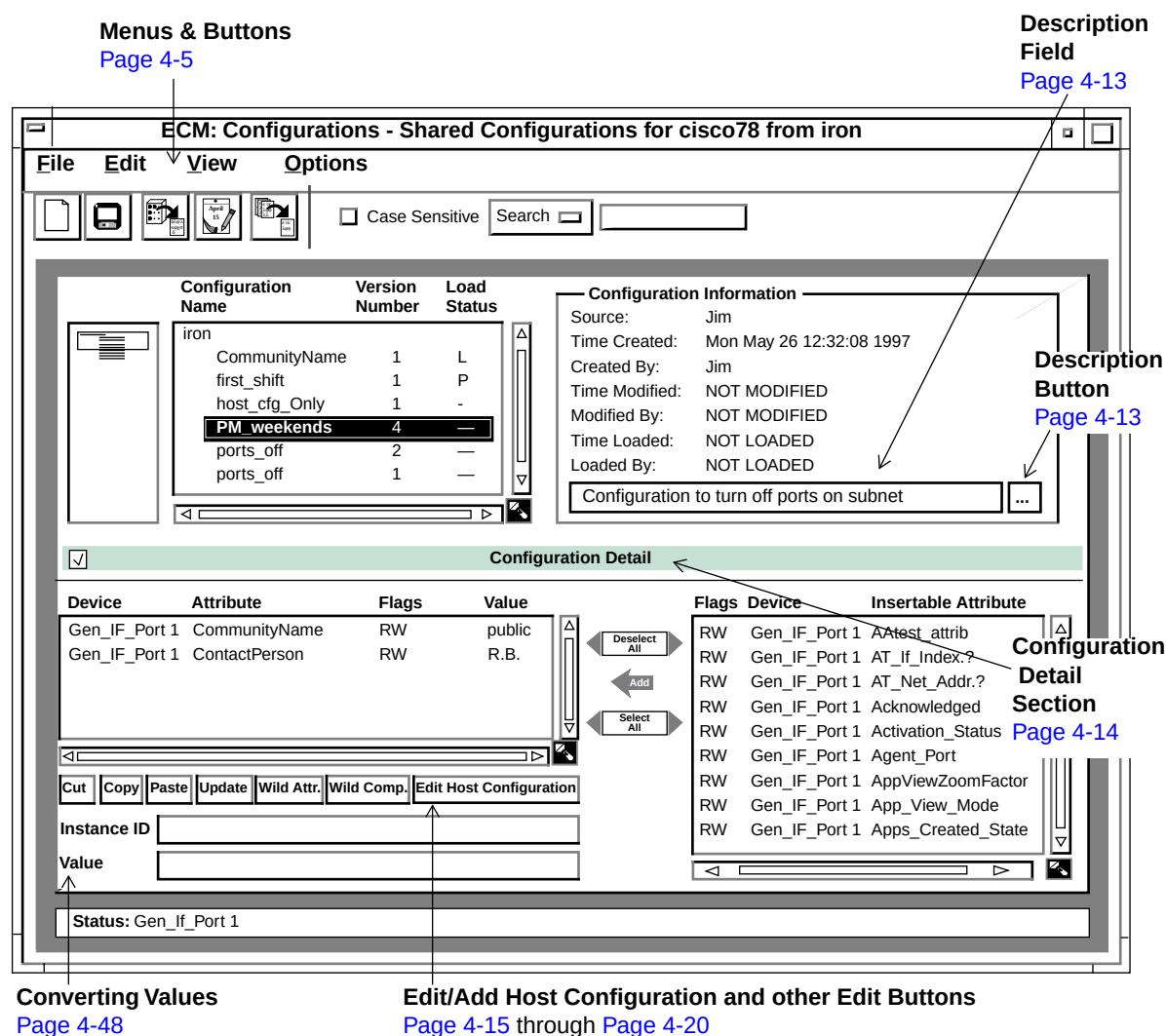
You create configurations manually (without templates) for these reasons:

- To create configurations quickly.
- To create configurations that may contain attributes that cannot be retrieved from the device. ECM enters a default value for any attribute that is not captured from the device.
- To create a configuration that includes a manually created Cisco host configuration file.

Configurations Window

The Configurations window — Shared View and Device Specific View — enables you to perform all the functions that are necessary for creating and editing configurations. See [Figure 4-1](#). You access this window from the Main window **Setup, Configurations...** men bar option.

Figure 4-1. Configurations Window



Initial View

If you have just installed ECM, you will find the fields in the Configurations window empty because ECM does not provide any default configurations. Since there are no configurations for you to select, the buttons and options are disabled.

When you or other users create configurations, however, the configurations that are available to the selected device appear in Configurations window. Then the buttons and options also become enabled.

Configuration Window Functions

The Configurations window allows you to:

- Capture configurations with templates from one or more devices of the same type in one operation.
- Create configurations manually without templates.
- Schedule automatic captures.
- Import and export configurations.
- Convert configurations to templates.
- Edit configurations by modifying instance IDs and values or adding and deleting attributes.
- Delete and print configurations.

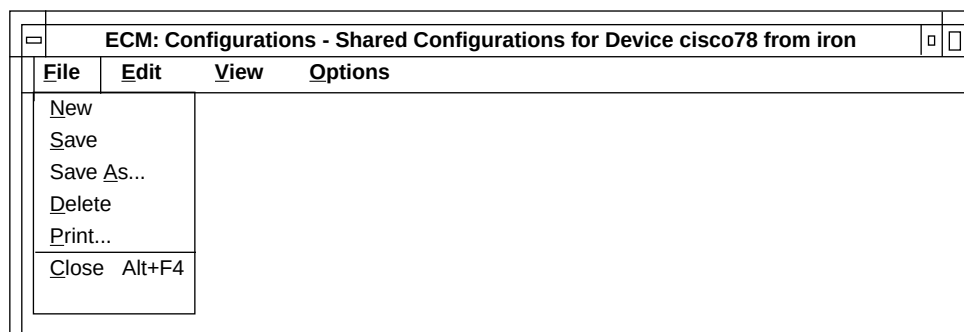
Configuration Window Sections

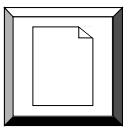
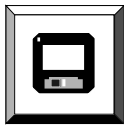
The Configurations window is very similar to the ECM Main window. Like the Main window, it has Configurations, Information, and Search/Filter sections. This chapter does not describe these sections, however, because they are covered in detail in Chapter 2. Instead this chapter describes the features that are *unique* to the Configurations window. These features include the Menu options, the Detail section, and various buttons.

Notice that the title bar of the Configurations window indicates the type of configuration displayed in the window: either shared or device specific.

File Menu and Related Buttons

[Figure 4-2](#), following, shows the File menu options of the Configuration window. [Table 4-1](#) describes the functions of each option and identifies the associated tool bar buttons.

Figure 4-2. File Menu Options for the Configuration Window**Table 4-1. File Menu Options and Associated Tool Bar Buttons**

Option	Function
<u>N</u> ew 	Creates a new configuration. When you click on the New option/button, ECM adds the name <UNTITLED> to the Configuration list. At this time, you can select attributes for the untitled configuration. When you use the Save As option, you give a name to the untitled configuration and specify the landscape where it will be saved.
<u>S</u> ave 	Saves a modified configuration. Depending on how you have configured the Save option, Save either creates a new version of the configuration (with the same name and an incremented version number) or overwrites the existing configuration (and increments the version number). You can define Save at installation, in the Preferences dialog box, or in the resource file Ecm.
Save <u>A</u> s...	Names a new (untitled) configuration, renames an existing configuration, or saves a configuration to a new landscape.
<u>D</u> elete	Deletes the selected configuration(s) from the Configuration list. For multiple selection, hold down the CONTROL key and select the configurations. When you click on Delete, ECM prompts you for confirmation.
<u>P</u> rint...	Prints the selected configuration. When you click on Print, a Printer dialog box appears where you specify the name of the printer and the printer type.
<u>C</u> lose	Closes the Configurations window.

Edit Menu

Figure 4-3 shows the Edit menu options of the Configuration window.
Table 4-2 describes the functions of each option in that menus.

Figure 4-3. Edit Menu

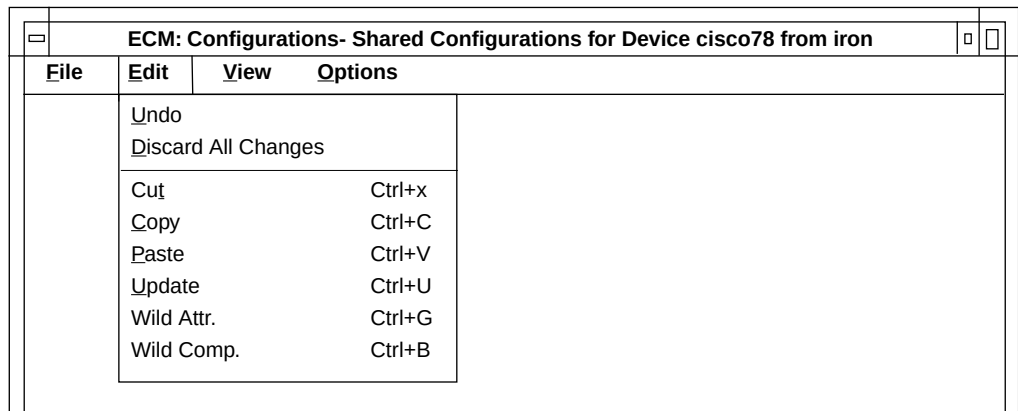


Table 4-2. Functions of Edit Menu Options

Option	Function
<u>U</u> ndo	Undoes Insert, Cut, Paste, Update, or Typing depending on how you have just edited the configuration. The undo buffer saves all your edits so that you can undo an entire sequence of edits; at any given time, the applicable option word is added to the Undo label to show what function will be undone if the option is selected If you have modified an attribute but not yet used the Update button, click on Undo Typing to discard the changes you have made.
<u>D</u> iscard All Changes	Discards all modifications to the configuration that you have not yet saved.
<u>C</u> ut	Removes the selected attribute(s) from the configuration and places it in the paste buffer. It also returns the attribute to the insertable attribute list if it has no duplicates.
<u>C</u> opy	Copies an attribute and places it in the paste buffer.

Table 4-2. Functions of Edit Menu Options (Continued)

Option	Function
<u>P</u> aste	Places the attribute(s) that were most recently put in the paste buffer into the configuration in the order selected by the sort option. For example, if the selected sort option is by attribute name, the attributes will be inserted alphabetically. If the selected sort option is by sequence, the attributes will be inserted beneath the attribute you have selected.
Update	Updates the selected attribute to have the values or instance IDs you have entered or edited.
Wild Attr.	Applies a wildcard capability to a list attribute, making it an attribute that can have more than one instance in a configuration. (When this function is applied, affected attributes in the Insertable Attribute list show a question mark to the right of the attribute name. For further information, see Wild Attr. button discussion on Page 4-17.)
Wild Comp.	Applies a wildcard capability to a device component that has more than one instance (for example, having two or more ports) in a given configuration. (When this function is applied, affected device components in the Insertable Attribute list show a question mark to the right of the device component name. For further information, see Wild Comp. button discussion on Page 4-18.)

View Menu

[Figure 4-4](#) shows the View menu options of the Configuration window. [Table 4-3](#) describes the functions of each option in that menus.

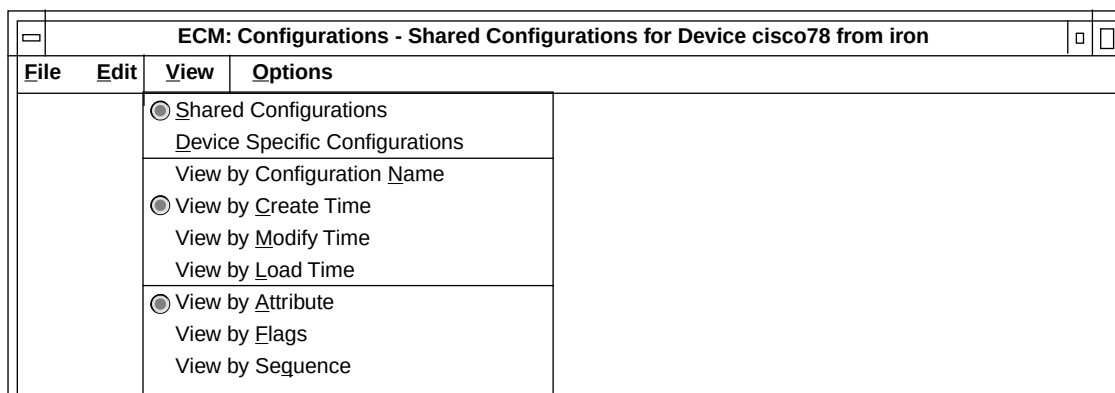
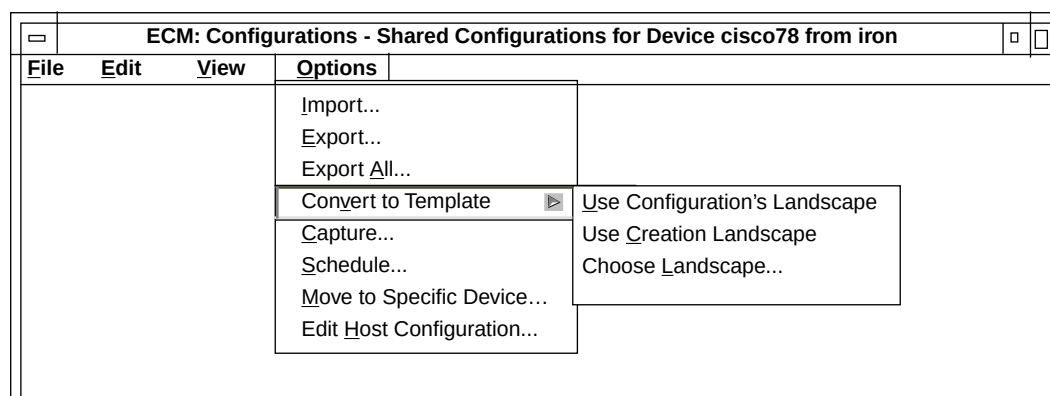
Figure 4-4. View Menu Options

Table 4-3. Functions of View Menu Options

Option	Function
Shared Configurations	Displays shared configurations in the Configurations and Main windows.
Device Specific Configurations	Displays device specific configurations in the Configurations and Main windows.
View Options	Arranges the configurations listed in the Configurations field in a specific way: by <u>N</u>ame (alphabetically), by <u>C</u>reate Time, by <u>M</u>odify Time, by <u>L</u>oad Time, by <u>A</u>tttribute, by <u>F</u>lags, or by Sequence (order of attributes). If you select View by Sequence, you can insert attributes in the sequence you want. To rearrange attributes by sequence: (1) Select View by Sequence from the View menu. (2) Select an attribute in the configuration that you want to reposition. (3) Click on the Cut button. (4) Select the attribute that should precede your cut attribute. (5) Click on the Paste button. Or, if the attribute is not yet inserted in the configuration: (1) Select View by Sequence from the View menu. (2) Select an attribute(s) from the insertable attribute list. (3) From the Configuration list, select the attribute that should precede your inserted attribute(s). (5) Click on the Add button.

Options Menu & Related Buttons

Figure 4-5 shows the Options menu options of the Configuration window. Table 4-4 describes the functions of each option in that menus and identifies the associated tool bar buttons.

Figure 4-5. Option Menu Options**Table 4-4. Option Menu Options and Associated Tool Bar Buttons**

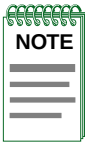
Option/Button	Function
<u>I</u> mport... 	Imports configurations or templates. Note that the ECM Import option imports a file that may contain templates <i>and</i> configurations for devices of <i>any</i> type. However, after an import, the Configurations window only displays the configurations that are available for the selected device. When you work with other devices, you will see the imported configurations and templates that are available to them. Chapter 7 describes the Import option in detail.
<u>E</u> xport	Exports the selected configuration to the specified file. See Chapter 7 .
Export <u>A</u> ll	Exports all configurations on all the ECM preferred landscapes to the specified file. See Chapter 7 .
C <u>o</u> nvert to Template	Creates a template from an existing configuration. The three submenu options allow you to specify the landscape where the template will be saved. First select the configuration and then click on the appropriate Convert to Template submenu option. ECM creates a template with the attributes listed in the configuration and with the same name as the configuration. ECM stores the template in the landscape specified. See Chapter 3.

Table 4-4. Option Menu Options and Associated Tool Bar Buttons (Continued)

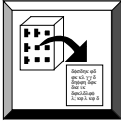
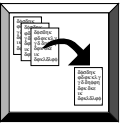
Option/Button	Function
<u>C</u> apture... 	Captures the configuration of the selected device(s). When you click on the Capture option/button, a Capture Configuration dialog box appears. In the dialog box, select the template(s) used for the capture, the landscape in which to save the configuration, and the configuration name.
<u>S</u> chedule... 	Opens the Scheduler dialog box where you can schedule operations.: - When you open the Scheduler from the Configurations window, you can schedule automatic configuration captures. - When you open the Scheduler from the ECM Main window, you can schedule loads and verifications. See Chapter 8.
<u>M</u> ove to Shared/ <u>M</u> ove to Specific Device  	Enables you to change a configuration's type from shared to device specific or vice versa. A device specific configuration is only available to one specific device; it does not appear in the list of shared configurations. So too, shared configurations do not appear in the list of device specific configurations. To change the type status of a configuration: 1. Select the configuration 2. Then click on the Move to... option/button. ECM prompts you for confirmation and then displays the configuration in the appropriate Configurations window — either Shared or Device Specific. Remember: - When changing a device specific configuration to shared, remove all device specific information from it. - When you use the Move to option, ECM saves the configuration to the appropriate window and resets the version number so that it represents the next version of the configuration in the new window. This ensures that version numbers are unique.

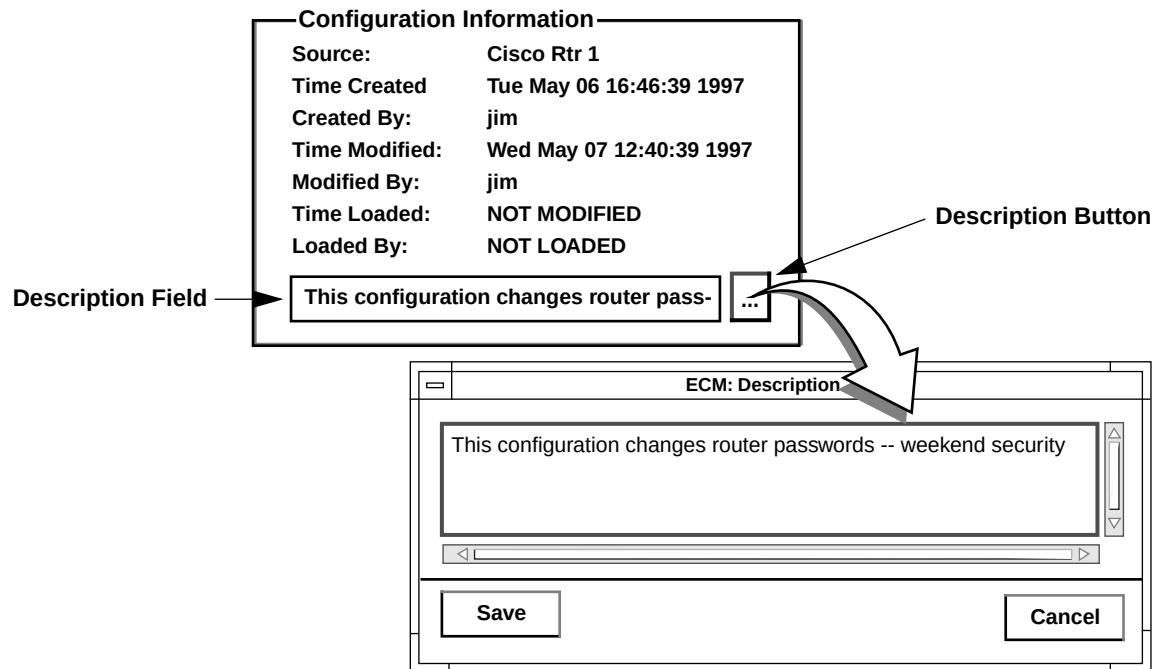
Table 4-4. Option Menu Options and Associated Tool Bar Buttons (Continued)

Option/Button	Function
Edit/Add Host Configuration...	Allows you to view, add, or edit the host configuration. ECM displays this button only if your device is a Cisco router and its type is included in the CISCO_MTYPES file. SRefer to Special Features for Cisco Routers, on Page 1-9, 1 for more details about the CISCO_MTYPES file. Since the option is dynamic, you will see either <i>Edit Host Configuration</i> or <i>Add Host Configuration</i> depending on what configuration you have selected. The Edit Host Configuration option indicates that the selected configuration already contains a Host Configuration. The Add Host Configuration option indicates that the configuration lacks a Host Configuration.

Configuration Information Section and Description Dialog Box

Figure 4-6 shows details of the Configuration Information Section and the associated Description dialog box that appears when you click on the button to the right of the descriptions field.

Figure 4-6. Configuration Information Section and Description Dialog Box



The Description field enables you to enter comments about each configuration. To edit or enter these comments, click on the button to the right of the Description field. A Description dialog box appears.

Since Configuration Information sections appear in both the ECM Main and Configurations windows, you can access the Description dialog box from both windows. The Description dialog box functions differently for each window, however.

- If you open the Description dialog box from the ECM Main window, you can only view — *not* edit or enter — text in the Description dialog box.
- If you open the Description dialog box from the Configurations window, you can edit and enter text in the Description dialog box.

Use the Description dialog box to provide configuration information for subsequent users. The text can include up to 256 characters.

Configuration Detail Section

Figure 4-7 shows details of the Configuration Detail section of the Configuration window. Table 4-5 describes the functions of each option in that menus.

Figure 4-7. Components of Detail Section

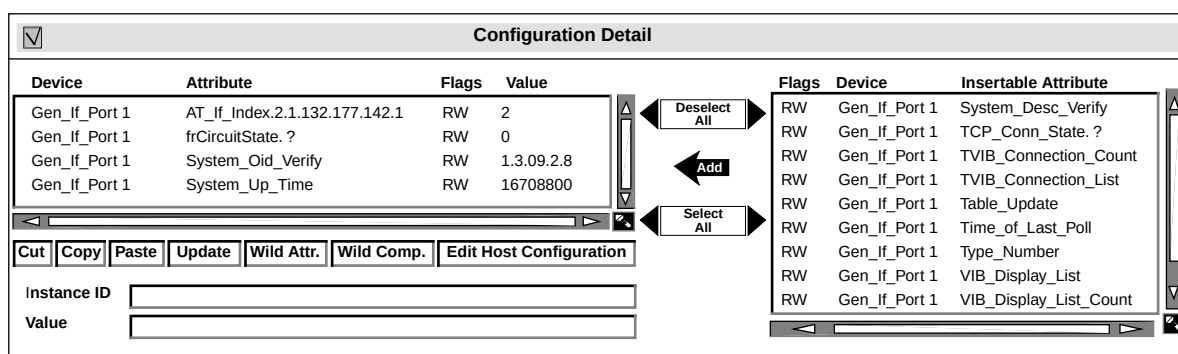


Table 4-5. Function of Components in Configuration Detail Section

Field/Button/List	Function
Device Attribute Flags Value List (Configuration Attribute List)	A list of all the attributes in the selected (or to be created) configuration along with the device (or device component) containing each attribute, the attribute's instance ID (if any), its flag, and its value. Notice when you click on other configurations, different attributes appear in this list. When you create a new configuration, you select attributes from the Insertable Attributes list and add them to the configuration list. ECM allows you to edit the configuration attribute list by modifying instance IDs and values or by adding and deleting attributes.

Table 4-5. Function of Components in Configuration Detail Section (Continued)

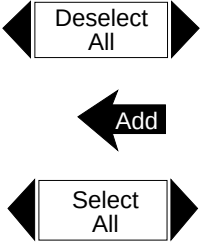
Field/Button/List	Function
Insertable Attribute List	A generic list of all the readable/writable and non shared attributes for the type of device selected — a specific device might not have some of these attributes. A question mark next to the attribute name indicates that the attribute has more than one instance ID. Use the attributes from this list to create a new configuration or to edit an existing one.
Selection Buttons 	The selection buttons — Select All, Add, Deselect All — enable you to put attributes into a configuration. Add inserts the selected attributes, instance IDs, where applicable, and attribute values into the configuration attribute list. Deselect All and Select All have <i>triangular</i> buttons on the <i>right</i> and <i>left</i> side which let you deselect or select all the attributes <i>in the list to which they point</i>. Use the Deselect All button before you begin selecting attributes so that you do not inadvertently move selected attributes that are hidden from view.
Edit Buttons 	Removes the selected attribute(s) from the configuration and puts it into the paste buffer. You might want to do this in order to resequence an attribute, as follows: To resequence an attribute: 1. Select View by Sequence from the View menu. 2. Select the attribute and click on Cut. 3. Select the attribute under which you want the resequenced attribute. 4. Click on Paste.

Table 4-5. Function of Components in Configuration Detail Section (Continued)

Field/Button/ List	Function
	<i>Copies</i> the selected attribute(s) with instance IDs. To copy an attribute: 1. Select View by Sequence from the View menu. 2. Select the attribute in the configuration attribute list. 3. Click on Copy. ECM adds a duplicate attribute to the paste buffer. 4. Select the attribute under which you want the copied attribute placed. 5. Click on Paste. 6. Enter the correct value and instance ID for this attribute in the appropriate text field and click on Update for each. The Copy function is necessary because the desired attribute may not appear in the Insertable Attributes list if one instance of the attribute is already in the configuration. If the Copy button remains grayed-out, check to see if more than <i>one</i> attribute with an instance ID is selected.
	<i>Pastes</i> the selected attribute(s) into the attribute list alphabetically or after the selected attribute in the inserted attribute list (if you have selected Order by Sequence from the View menu). For instructions on how to paste attributes, refer to the preceding instructions for using the Cut or Copy Button.

Table 4-5. Function of Components in Configuration Detail Section (Continued)

Field/Button/ List	Function
Edit Buttons (continued) 	<i>Wildcards</i> (applies wildcard capability to) a <i>list attribute</i>, an attribute that can have more than one instance in the configuration. List attributes are identified in the <i>Insertable Attribute</i> list by a <i>question mark</i> to the right of the attribute name. The Wild Attr. button is enabled only if you have selected a <i>list attribute</i> instance in the configuration attribute list. A wildcarded list attribute in a configuration enables you to load the <i>same value</i> into many instances of the attribute in a device, with one instance of the attribute in the configuration. This reduces the number of instances of a list attribute you may need in a configuration. To wildcard a list attribute: 1. Add the list attribute to the attribute configuration list. 2. Select View by Sequence from the View menu. (If you do not select this view, ECM places the wildcarded attribute at the top of the list of instances for this attribute when you wildcard the attribute.) 3. Select an instance of the attribute in the configuration list after the instances whose values you want to remain unique. 4. Click on Wild Attr. or type a star in the value field and click on Update. 5. Remove the instances you no longer need, using the Cut button. After you have wildcarded a list attribute instance, an <i>asterisk</i> appears to the right of the attribute instance name in the <i>configuration list</i>, indicating that it is now a wildcarded attribute. For more information on the wildcard function, see Applying Wildcard Capability to Attributes, on Page 4-41. You can wildcard not only a list attribute but also a device component. See the Wild Comp. button description.

Table 4-5. Function of Components in Configuration Detail Section (Continued)

Field/Button/ List	Function
Edit Buttons (continued) 	<i>Wildcards</i> (applies wildcard capability to) a <i>device component</i> having more than one instance (for example, two or more repeater ports) in a configuration. Device components are identified in the <i>Insertable Attribute</i> list by a <i>question mark</i> to the right of the device name. The Wild Comp. button is enabled only if you have selected an attribute having a <i>device component</i> instance in the configuration attribute list. A wildcarded device component in a configuration enables you to load the <i>same value</i> into many instances of the component in a device, with one instance of the attribute in the configuration. This reduces the number of instances of a list attribute you may need in a configuration. To wildcard a device attribute: 1. Add it to the configuration attribute list. 2. Select View by Sequence from the View menu. (If you do not select this view, ECM places the wildcarded attribute at the bottom of the list of instances for this attribute when you wildcard the attribute.) 3. Select an instance of the attribute in the configuration attribute list after the instances whose values you want to remain unique. 4. Click on Wild Comp. or type a star in the value field and click Update. 5. Remove the instances you no longer need, using the Cut button. After you have wildcarded a device attribute instance, an <i>asterisk</i> appears to the right of the attribute instance name in the <i>configuration attribute list</i>, indicating that it is now a wildcarded attribute. For more information on the wildcard function, see Applying Wildcard Capability to Attributes, on Page 4-41. You can wildcard not only a device attribute but also a list attribute. See also the Wild Attr. button description.

Table 4-5. Function of Components in Configuration Detail Section (Continued)

Field/Button/ List	Function
Edit Buttons (continued) 	<i>Modifies</i> the values or instance IDs of the attributes in your configuration. Notice that when you select a <i>single</i> attribute in the Configuration Attribute list, the value appears in the Value text box and, if present, the instance ID appears in the Instance ID text box. Edit the information in these boxes and then click on Update to add the new information to the Configuration Attribute list. Then save the configuration with the Save or Save As option. The Update button remains grayed-out until you actually edit a value in the Value or Instance ID text boxes.
Instance ID Text Box	Allows you to <i>edit an attribute's instance ID</i>. To edit an attribute's instance ID: 1. Select the <i>attribute</i> in the configuration attribute list to display the instance ID in the Instance ID text box. 2. Enter a new value in the Instance ID text box. (ECM will not accept an invalid or duplicate instance ID.) 3. Click on Update to place the new value in the attribute's instance ID. If the instance ID does not appear in the text field, use the Deselect All button to make sure all attributes in the configuration list are deselected. Then select the attribute again.

Table 4-5. Function of Components in Configuration Detail Section (Continued)

Field/Button/ List	Function
Value Text Box	Allows you to <i>edit an attribute's value</i>. To edit an attribute's value: 1. Select the attribute in the configuration attribute list to display the attribute's value in the Value text box. 2. Enter the correct value in the Value text box. 3. Click on Update to add the value to the attribute in the configuration list. If an attribute's value does not appear in the text box, use the Deselect All button to make sure all attributes in the Configuration attribute list are deselected. Then select the attribute again. If you select an attribute with True/False values, True and False radio buttons appear. If you select an attribute that has a hexadecimal value, the Convert option appears so you can convert the value to decimal or ASCII.
Edit/Add Host Configuration Option Button	Allows you to <i>view, add, or edit</i> the host configuration of a Cisco router. ECM displays this button only if your device is a Cisco router and if this type of Cisco router is included in the CISCO_MTYPES file. Since the option is dynamic, you will see either Edit Host Configuration or Add Host Configuration, depending on what configuration you have selected: • The Edit Host Configuration option indicates that the selected configuration already contains a Host Configuration. • The Add Host Configuration indicates that the configuration lacks a Host Configuration. For more details about the CISCO_MTYPES file, refer to Special Features for Cisco Routers, starting on Page 1-9. For information on how to edit host configurations, refer to Creating and Editing the Cisco Host Configuration, on Page 4-54 and Viewing and Editing the Host Configuration Passwords, on Page 4-57.

Creating a Configuration without a Template

When you create configurations without a template, you can insert any attribute in the configuration even if ECM cannot capture its value from the device.

ECM notifies you when it cannot capture attribute values. Then, after notifying you, ECM enters a default value (either a number, text string, or blank) as the attribute's value and, if applicable, a question mark as a placeholder for the instance IDs.

This section is divided into the following subsections:

- [Procedure Process](#)
- [Procedure Summary](#)
- [Procedure Details](#)

Procedure Process

1. When you select the NEW button or option to create a configuration without a template, ECM gets the attributes from the SPECTRUM model type for the selected device and displays these attributes in the Insertable Attributes list.
2. When you add these attributes to the configuration from the insertable attributes list, ECM captures values for these attributes from the selected device. When it cannot capture a value from the device, it notifies you, giving you the attribute name and reason. ECM then adds a default value for the attribute value, which could be a blank. You should edit or delete these attributes.
3. When you save the attribute, ECM stores it with the name and in the landscape you select.

Procedure Summary

1. Open the ECM Main window.
2. Make sure you are working with the desired type of configuration — either shared or device specific. If necessary, select Shared Configurations or Device Specific Configurations from the View menu of the Main window.
3. In the ECM Main window, click on the **Setup, Configurations...** menubar option.

The Configurations window, the window where you can create and edit configurations, appears.



4. In the Configurations window, select the **New** button or menu option.
 - If you are in device specific view, the Select Devices window appears. In this case, select the device whose configuration you want to create or edit. You can only select one device. Then click on **OK**.

This closes the Select Devices window and returns you to the Configurations window, placing the name, <UNTITLED>, in the configurations list and a list of attributes in the Insertable Attributes list box.
 - If you are in shared view, the name, <UNTITLED>, appears in the configurations list and a list of attributes in the Insertable Attributes list box.
5. Add the desired attributes to your configuration by selecting attributes and using the **Add**, **Cut**, **Select All**, and other edit buttons.
6. If you get a message saying that some attribute values cannot be captured:
 - a. Click on **Yes** to see the Add Detail window. Then click on **File**, **Print** to print the list and **File**, **Close** to close the Add Detail window.
 - b. Using your printed list, edit the attribute values and instance IDs as appropriate.
7. If you want to edit or manually add commands to a Cisco router host configuration, click on the **Edit/Add Host Configuration** button and edit or enter the commands.
8. To help you identify the configuration, click on the description-field button to open its text dialog box, enter text in the dialog box, and click on **OK**.
9. Save the configuration by selecting **File**, **Save As**, entering the desired creation landscape and file name, and clicking on **OK**.
10. In the ECM Information box, reporting that the configuration was successfully saved, click on **OK**.

Procedure Details

1. Open the ECM Main window.
2. Make sure you are working with the desired type of configuration — either shared or device specific.

The title bar of the ECM Main window includes the name of the device you selected in SPECTRUM and indicates whether this window displays shared or device specific configurations.

If necessary, select Shared or Device Specific Configurations from the View menu of the Main window.

You can also select the type of configuration (device specific or shared) in the Configurations window (Step 4). However, if you select the configuration type in the Main window, then when you return to that window, you will automatically see the same configurations (of the same type) that you worked with in the Configurations window, without having to change the view.

You can also change a configuration type, once it is created. To do so, in the Configurations window, you select the configuration you want to change, then click on **Options, Move to....** The Move to option changes, depending on which view you are in: device specific or shared.

3. In the ECM Main window, click on the **Setup, Configurations...** men bar option.

The Configurations window, the window where you can create and edit configurations, appears.



4. In the Configurations window, select the **New** button or menu option.
 - If you are in device specific view, the Select Devices window appears. In this case, select the device whose configuration you want to create or edit. You can only select one device. Then click on **OK**.

This closes the Select Devices window and returns you to the Configurations window, placing the name, <UNTITLED>, in the configurations list and all the attributes for this device type in the Insertable Attributes list box.
 - If you are in shared view, the name, <UNTITLED>, appears in the configurations list and all the attributes for this device type in the Insertable Attributes list box.
 - Notice that question marks follow the names of some attributes in the Insertable Attributes list. A question mark indicates that the attribute has instance IDs.
5. If you need to position attributes in a specific order in the configuration, select **View, Sort-by-Sequence**.
6. To add the desired attributes to your configuration, use the **Deselect All, Select All, Add,** and **Cut** buttons in the following ways:
 - a. As a safety precaution, begin by clicking on the right-hand arrowhead of the **Deselect All** button, thereby ensuring clearance of any residual selection of attributes hidden beyond the visible range of the list shown in the window.
 - b. Select any desired combination of attributes in the right-hand Insertable Attributes list by any of the following methods:

- To select a single attribute, simply click on the attribute entry line.
- To select a single group of multiple consecutive attributes, either click on the first attribute, hold down the shift key and then click on the last attribute you want to select, or else simply drag the cursor over the desired group of attributes.
- To select multiple nonconsecutive attributes, hold down the **Control** key as you select entries.



You must release the **Control** key when you want to scroll up or down to an out-of-sight attribute, in order to avoid moving all the way to the end of the scroll list, and then hold down the **Control** key down again before clicking on any further selections.

- To select *all* the attributes, click on the right side of the **Select All** button.

For any of the above approaches, you can remove one or more attributes from the selected group at any time *before* you click on the **Add** button by clicking on the unwanted attribute(s) again while holding the **Control** key down.

- c. After ensuring that you have selected the specific attribute(s) you want, click on the **Add** button.

When you click on **Add**, ECM moves the values and instance IDs (if any) of the selected (highlighted) attributes from the right-hand Insertable Attributes list to the left-hand Attribute/Value list. When you add an attribute with instance IDs, ECM moves *all* instances of each such attribute to the Attribute/Value list.

- d. To complete the attribute reassignment, click on the left-hand arrowhead of the **Deselect All** button. This action clears the existing selection status, removing the highlighted condition from any previously selected attributes. In the event that you change your mind about the assignment before you perform this final step, you can click on the **Cut** button (in the lower left corner) at any time after the preceding Add operation but before clicking on the **Deselect All** button, and all highlighted attributes in the left-hand scroll list will be returned to the right-hand Insertable Attributes list.
- e. Remove attributes from the left-hand Device/Attribute/Flags/Value list by selecting the attribute and then clicking on the **Cut** button. (To undo an inprocess Cut operation from the left-side list, click on **Add** before you deselect the attributes.)

Removal of any unwanted attributes from the left-hand list can be accomplished by the reverse form of this same process. You first click on the left-hand end of the **Deselect All** button to clear any unseen

selected conditions, select (highlight) the attribute(s) in the left-hand Attribute list that you want to remove, and then click on the **Cut** button to move the selected attribute(s) from the left-hand list to the right-hand list. Selection of multiple attributes is accomplished in the same way as described above.

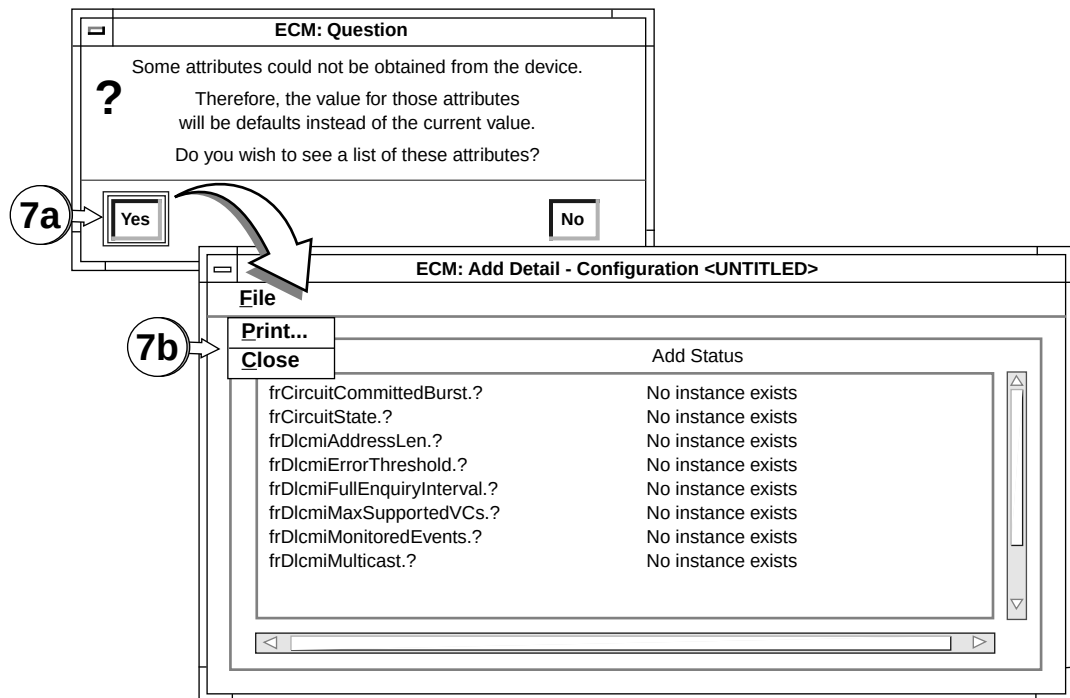
If ECM cannot capture the values of attributes you are adding to the configuration, it notifies you with a message box similar to that in [Figure 4-8](#).

For details on editing a configuration, see the section [Editing a Configuration](#), on Page 4-37. For information on how to use each of the Edit buttons, refer to [Options Menu & Related Buttons](#), on Page 4-9.

7. If attribute values cannot be captured:
 - a. View those attributes by clicking on **Yes** in the message box.

An Add Detail window appears, as shown in [Figure 4-8](#).

Figure 4-8. The Capture Failed Prompt and the Add Detail Window



- b. In the Add Detail window, click on **File, Print** to print the attributes in the Attribute/Add Status list. Then select the **File, Close** option to return to the Configurations window.

Later (see Step 8), you can manually enter values for the uncaptured attribute values or delete the attributes from the configuration.

8. If you want to edit or manually add commands to a Cisco router host configuration, click on the **Edit/Add Host Configuration** button in the Configurations window. Then edit or enter the commands in the Edit/Add Host Configuration dialog box that appears. Refer to [File Menu and Related Buttons](#), on Page 4-5, for details.



If you change your mind when creating a new configuration and want to view the landscapes and configurations in the Configuration window, just select the Discard All Changes option in the Edit menu. ECM deletes the configuration named UNTITLED and displays the configurations list in the Configuration window.

9. After you select the attributes for the configuration, edit the instance IDs and values if necessary. Do not leave any attributes with question marks in the configuration; they are only place-holders for instance IDs.

There are various ways to modify attribute values and attributes with instance IDs. See the following sections later in this chapter:

[How to Modify Attribute Values and Instance IDs](#), on Page 4-37.

[A Quick Method to Add Attributes with Instance IDs](#), on Page 4-38.

[How to Duplicate Attributes with Instance IDs](#), on Page 4-47.

[Converting Hexadecimal Values to ASCII or Decimal](#), on Page 4-48.

10. To help you identify the configuration, click on the description-field button to open its text dialog box, enter text in the dialog box, and click on **OK**.
11. Save the configuration by clicking on the **Save As** option under the File menu of the Configurations window.

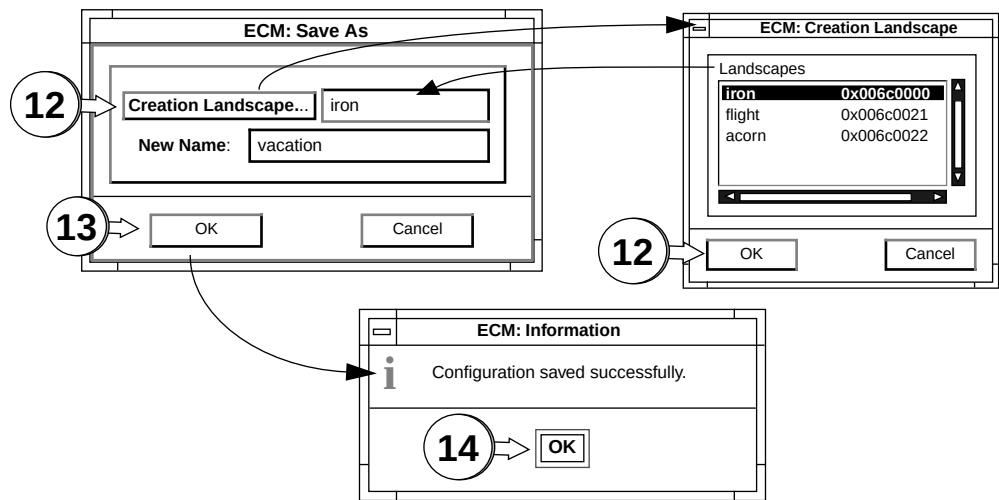
When you click on Save As, the Save As dialog box appears. See [Figure 4-9](#).

12. In the Save As dialog box, make sure the Creation Landscape field specifies the landscape where you want to save the configuration. If you want to store the configuration elsewhere, follow these steps:
 - a. In the Save As window, click on the **Creation Landscape** button to bring up the Creation Landscape dialog box.

The Creation Landscape dialog box lists those landscapes that are reachable and have the ECM server component installed on them.

- b. In the Creation Landscape dialog box, select the new landscape and click on **OK**. The new landscape name now appears in the Save As dialog box.

Figure 4-9. Saving the New Configuration



13. Type the configuration name in the name field of the Save As dialog box. Then click on **OK** (or click on the **Return** key) to close the dialog box.
14. After you click on OK in the Save As dialog box, ECM displays a message box saying, “Configuration saved successfully.” Click **OK** in the message box.

The new configuration is now displayed in the Configurations list of the Configurations window. If you created a shared configuration, it will be available to every device of this type. If you created a device specific configuration, it will be listed under the device to which it is specific.

Creating a Configuration with a Template

You can create a new configuration by using one or more templates to capture a configuration from a device and then modifying it, if necessary.

This section is subdivided into the following subsections:

- [Checking for Appropriate Template](#)
- [Creating a Template](#)
- [Creating a Configuration with a Template — Procedure Process](#)
- [Creating a Configuration with a Template — Procedure Summary](#)
- [Creating a Configuration — Procedure Details](#)

Checking for Appropriate Template

Before you create a configuration with a template, make sure you have the appropriate template(s) to use in the capture process. To check the available templates, select **Setup, Templates** from the Main window menu bar. Then select device specific or shared from the View menu.

ECM captures the values of those attributes specified in the template. If you are going to load the configuration to multiple devices, you should not include device specific attributes such as Network_Address (the IP address of the device) in the configuration. Likewise, the template used to capture this configuration should not include the IP address attribute.

Creating a Template

To create a new template, do the following procedure. If you have not created a template, see Chapter 3, [Creating and Managing Templates](#), for details:

1. Open the Templates window by selecting **Setup, Templates** from the ECM Main window menu bar.



2. In the Templates window, select the **New** button or File, New from the menu bar.

The new template, named <UNTITLED>, appears highlighted in the Template Name field and *all* the readable, writable, and non shared *attributes* for this *device type* (not just those of the specific device selected) appear in the Insertable Attributes field.

3. Select the desired attributes in the following ways:
 - a. As a safety precaution, begin by clicking on the right-hand arrowhead of the **Deselect All** button, thereby ensuring clearance of any residual selection of attributes hidden beyond the visible range of the list shown in the window.
 - b. Select any desired combination of attributes in the right-hand Insertable Attributes list by any of the following methods:
 - To select a single attribute, simply click on the attribute entry line.
 - To select a single group of multiple consecutive attributes, either click on the first attribute, hold down the shift key and then click on the last attribute you want to select, or else simply drag the cursor over the desired group of attributes.
 - To select multiple nonconsecutive attributes, hold down the **Control** key as you select entries.



You must release the **Control** key when you want to scroll up or down to an out-of-sight attribute, in order to avoid moving all the way to the end of the scroll list, and then hold down the **Control** key down again before clicking on any further selections.

- To select *all* the attributes, click on the right side of the **Select All** button.

For any of the above approaches, you can remove one or more attributes from the selected group at any time *before* you click on the **Add** button by clicking on the unwanted attribute(s) again while holding the **Control** key down.

- c. After ensuring that you have selected the specific attribute(s) you want, click the **Add** button.

When you click on **Add**, ECM moves the selected attributes with their flags to the Attribute field. Following this action, therefore, the Insertable Attributes field contains only those attributes that were *not* added to the template.

- d. To complete the attribute reassignment, click on the left-hand arrowhead of the **Deselect All** button. This action clears the selection status, removing the highlighted condition.
 - e. As a final safety step after adding attributes, click on the right-hand end of the **Deselect All** button to ensure clearance of any selection condition in that list, including any previously selected attributes that might be hidden from view beyond the visible range in the list window.
4. If you want to remove previously assigned attributes from the Attribute list:
 - a. Click on the left side of the **Deselect All** button to deselect all attributes in the left-hand list. (This is important, because selected attributes may be hidden from view.)
 - b. Remove any undesired attribute(s) from the left-hand Device/Attribute/Flags/Value list by selecting the attribute(s) in the same way as described above for adding attributes.
 - c. After confirming that you have selected (highlighted) all of the attribute(s) in the left-hand list that you want to remove, click on the **Cut** button. ECM responds by moving the selected attribute(s) to the right-hand Insertable Attributes list.
 5. If you are creating a template for a Cisco router and you want to capture the host configuration, select **Yes** in the Include Host Configuration field.



You can create templates for configurations that require some attributes to be configured before other attributes. If you create multiple templates and then multiple configurations for a single device, you can load the configurations to the device in the required order.

6. When you have finished, click on **File, Save As** in the menu bar.

The Save option is grayed-out because this is a new template that needs a name. When you modify a template, the Save option will be available to you.

7. Select the landscape.

When you click on Save As, the Save As dialog box appears. Make sure the Creation Landscape field specifies the landscape where you want to store the template. If you want to store the template other than in the selected one, follow these steps:

- a. In the Save As window, click on the **Creation Landscape** button to bring up the Creation Landscape dialog box.

The Creation Landscape dialog box lists those landscapes that are visible to the SpectroSERVER.

- b. In the Creation Landscape dialog box, select the new landscape and click on **OK**. The new landscape name appears in the Save As dialog box.

8. Type the template name in the name field of the Save As dialog box. Then click on **OK** (or click on the **Return** key) to close the dialog box. There is no need to give it a file *type* name since the system recognizes templates as such and only displays them in the templates window.

ECM displays a message box that says, "Template saved successfully."

9. Click on **OK** in the message box.

The Templates window now contains the new template name in the Template Name field, the list of attributes with their flags in the Attribute field, and the relevant information in the Time Created, Time Modified, and Created By fields.

This template will appear in the template list for every device of this type.

10. Select **File, Close** to close the templates window.

Creating a Configuration with a Template — Procedure Process

The ECM Templates window provides you with a list of attributes that you use to create templates. This list includes all the readable/writable and non shared attributes for the selected type of device.

When you use a template to capture a configuration:

1. ECM searches the selected device for the attribute values specified in the selected template(s).
2. ECM captures the values of the attributes specified in the template and includes the captured attribute/value pairs in the new configuration. If available, ECM also captures all instances of an attribute.
3. If ECM cannot capture attribute values specified in the template, it shows you the attributes that were not captured and does *not* include them in the configuration.

ECM includes in the configuration *only* those attributes whose values can be retrieved from the device. You can manually insert other attributes later, if necessary.

Creating a Configuration with a Template — Procedure Summary

1. From the menu bar of the Main Window, select **Setup, Configurations....** This displays the Configurations Window.



2. Click on the **Capture** button or menu option.

A Capture Configuration dialog box is displayed. It includes the templates that you created for this device type.

3. Select the configuration type you want: shared or device specific.
4. If the preselected device is not the one from which you want to capture values for a configuration, click on the **Choose** button to select one or more devices. Then in the Device dialog box, select the device(s) you want and click on **Ok**. This returns you to the Capture Configuration dialog box.
5. Select the template(s) you want to use to capture the configuration. To select multiple templates, hold down the CONTROL key and click on the template names.

If you select more than one template, ECM captures the attribute values specified in both templates and combines them in one configuration. Attributes common to both templates appear only once in the configuration

6. Make sure the Creation Landscape field specifies the landscape where you want to save the configuration. If you want to store the configuration elsewhere, follow these steps:

- a. In the Capture Configuration window, click on the **Creation Landscape** button to bring up the Creation Landscape dialog box.

The Creation Landscape dialog box lists landscapes that are reachable and also have the ECM server component installed on them.

- b. In the Creation Landscape dialog box, select the new landscape and click on **OK**.

The new landscape name now appears in the Creation Landscape field of the Capture Configuration dialog box.

7. Type the configuration name in the configuration name field of the Capture Configuration dialog box.

8. When you have entered all the information, click on **OK**.

ECM captures the configuration and displays a message box indicating the success or failure of the operation:

- If ECM captures every attribute in the template successfully, the message displays success. In that case, click on OK and the system returns you to the Configurations window.
- If ECM cannot capture some attributes, it notifies you with a message box.

9. To view the attributes that were not included in the configuration, click on **Yes** in the message box.

A Capture Detail window appears. This window displays the attributes that were *not* captured. The Capture Status of each attribute indicates why it could not be captured.

10. After viewing the attributes, click on the **File, Close** option to close the Capture Detail window and return to the Configurations window.

The new configuration is listed in the Configurations window.

11. Listed in the description field is any description the template(s) had. To edit the description, click on the description-field button, enter/edit text in the field dialog box, and click on **Save**.

12. To return to the Main window, click on **File, Close**.



Depending on how the view in your Main window is set, you may or may not see in the Main window the new configuration created through the capture process. For example, if the view is set to display shared configurations, and you created a device specific one, you will not see the new configuration until you change the view in the Main window to device specific.

Creating a Configuration — Procedure Details

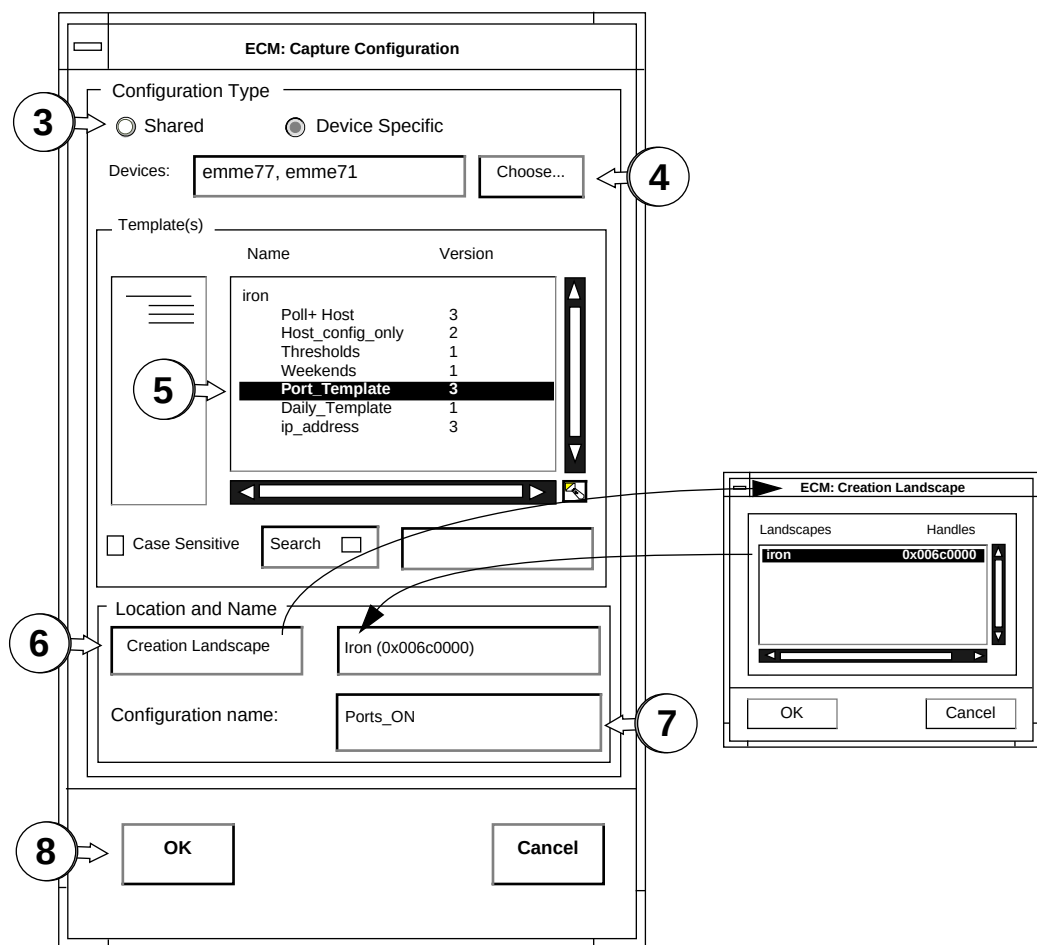
1. From the Main window menu bar, select **Setup, Configurations....** This displays the Configurations Window.



2. Click on the **Capture** button or menu option.

A Capture Configuration dialog box is displayed. It includes the templates that you created for this device type. See [Figure 4-10](#).

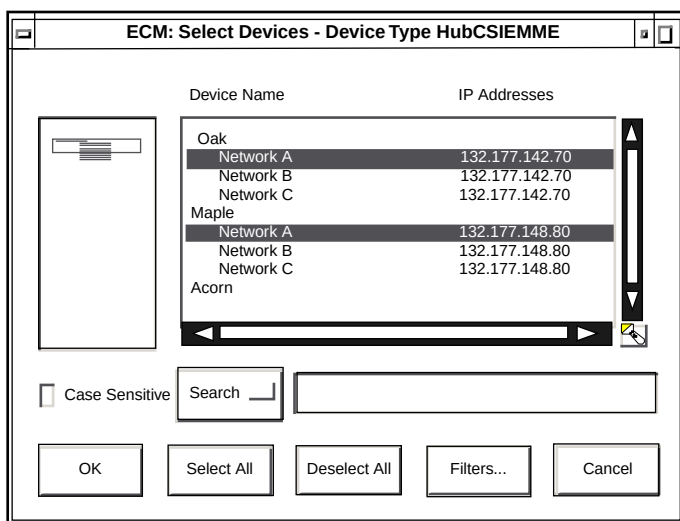
Figure 4-10. The Capture Configuration and Creation Landscape Dialog Boxes



3. Select the type of device for which you want to create a configuration.
4. Select the device(s).

Clicking on the **Choose** button brings up the Select Devices dialog box Refer to (see [Figure 4-11](#)), which presents a list box with a 2-level hierarchy of landscapes containing devices of the same type. The list box is single-select if you want to create shared configurations (that is of the shared configuration type) and multiselect if you want to create device specific configurations.

Figure 4-11. Select Devices Dialog Box



The “Devices” text box displays the list of device(s) selected for capture from the Select Devices window. Because of this feature, you do not have to get out of the Configuration Manager and select the individual device(s) from the SpectroGRAPH to capture configurations from multiple devices of the same type.

If you select devices from the dialog box, click on **OK** when you are ready. This returns you to the Capture Configuration dialog box. See [Figure 4-10](#), preceding.

5. Select the template(s) you want to use to capture the configuration. To select multiple templates, hold down the CONTROL key and click on the template names.

If you select more than one template, ECM captures the attribute values specified in both templates and combines them in one configuration. Attributes common to both templates appear only once in the configuration.

6. Make sure the Creation Landscape field specifies the landscape where you want to save the configuration. If you want to store the configuration elsewhere, follow these steps:

- a. In the Capture Configuration window, click on the **Creation Landscape** button to bring up the Creation Landscape dialog box.

The Creation Landscape dialog box lists landscapes that are reachable and also have the ECM server component installed on them.

- b. In the Creation Landscape dialog box, select the new landscape and click on **OK**.

The new landscape name now appears in the Creation Landscape field of the Capture Configuration dialog box.

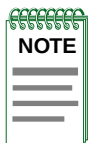
7. Type the configuration name in the configuration name field of the Capture Configuration dialog box. Multiple device specific configurations are created with the same user-entered name.
8. When you have entered all the information, click on **OK**.

ECM captures the configuration and displays a Capture Results dialog box. The Capture Results dialog box shows the results of the capture from the selected device(s). If one or more attribute values cannot be captured, the Capture Detail dialog box shows the details of the capture of each attribute value that was unsuccessfully captured:

- If ECM captures every attribute value in the template successfully, it returns you a success message result. Click on **OK** in the Capture Results dialog box. This returns you to the Configurations window with the name of your new configuration displayed in that window. In this case, this is the end of this procedure.
- If ECM cannot capture some attribute values, it notifies you with a message box similar to that in [Figure 4-12](#). In this case, continue with Steps 9 and 10.

9. To view the attributes that were not included in the configuration, click on **Yes** in the message box.

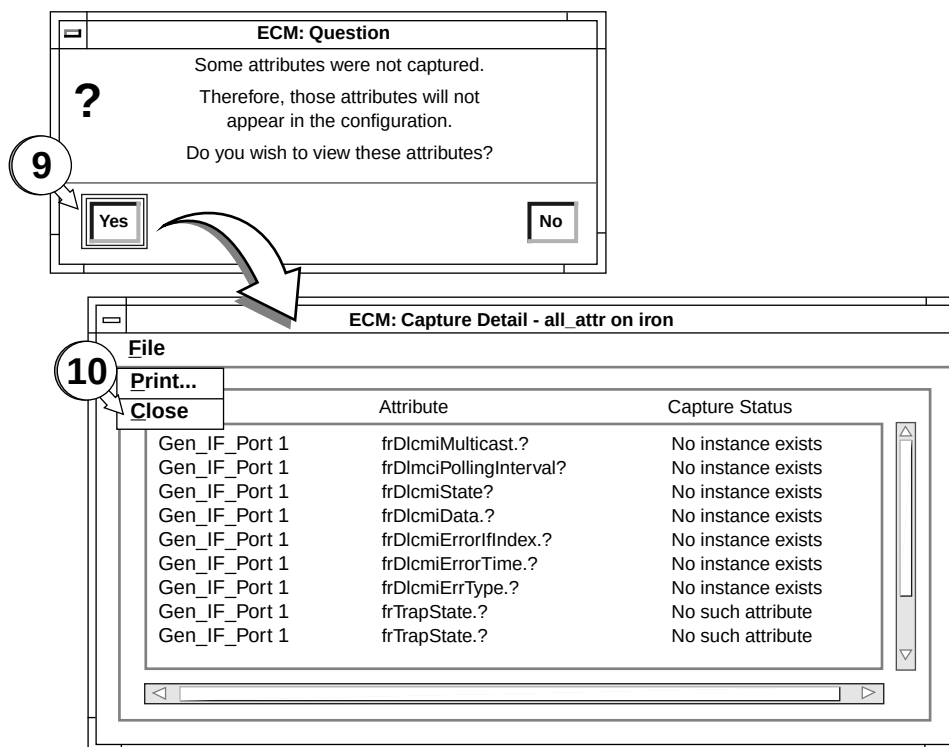
A Capture Detail window appears. See [Figure 4-12](#). This window displays the attributes that were *not* captured. The Capture Status of each attribute indicates why it could not be captured.



When you create a template, ECM provides you with a list of attributes for this type of device. Specific devices on your network, however, may not have all of these attributes or the attributes may be shared or may not be readable or writable. See also the description of the Attribute Flags field in the [Configuration Detail Section and Status Field](#), on Page 2-17.

When ECM is not able to capture the value of the attribute, the capture status in the Capture Detail window shows you why.

Figure 4-12. Capture Result and Capture Detail Windows



10. After viewing the attributes, click on the **File, Close** option to close the Capture Detail window and return to the Configurations window.

The new configuration is now listed in the Configurations window.

11. Listed in the description field is any description the template had. To edit the description, click on the description-field button, enter/edit text in the field dialog box, and click on **Save**.
12. To return to the Main window, click on **File, Close**.

You can load and verify configurations only from the Main window.



Depending on how the view in your Main window is set, you may or may not see in the Main window the new configuration created through the capture process. For example, if the view is set to display shared configurations, and you created a device specific one, you will not see the new configuration until you change the view in the Main window to device specific.

Editing a Configuration

You can edit a configuration at any time:

- After you capture the configuration with a template.
- While you are creating a configuration without a template.
- After you save a configuration.

The following sections describe the various editing procedures.

Tips for Undoing Edits and Discarding Changes

The Undo option at the top of the Edit menu pertains to the last previously performed operation, and its associated nomenclature changes as applicable to indicate what exactly is to be undone if that option is selected. Successive option selections are stored in a buffer, so that undoing the last-performed action enables the next-previously performed action as the next action that you can undo. You can use the following **Undo** options on the Edit menu to undo changes when you are editing attribute values and instance IDs:

- Click on **Undo Insert** to undo the last previous addition to the Attribute/Value list.
- Click on **Undo Cut** to undo the last previous removal from the Attribute/Value list.
- Click on **Undo Paste** to discard the last preceding duplication obtained by copying any entry already in the Attribute/Value list.
- Click on **Undo Typing** to undo the last preceding modification of either an Instance ID or a Value for any entry in the Attribute/Value list.
- Click on **Undo Update** to undo the last preceding confirmation of a modification of either an Instance ID or a Value for any entry in the Attribute/Value list.
- Click on **Discard All Changes** to undo *all* modifications that you have not yet saved.

How to Modify Attribute Values and Instance IDs

Because ECM captures values and instance IDs from an existing device, most of the work in creating configurations is done for you. However, if you need to modify attribute values and instance IDs, follow these steps:

1. In the Configurations window, select the configuration you want to edit.

2. Select a single attribute.

When you select a single attribute, the attribute's instance ID, if any, and value appear in the Instance ID and Value field, respectively. If these fields remain empty, you may have multiple entries selected. In this case, click on the left side of the **Deselect All** button and then select the attribute again.

3. Type the correct information in the Instance ID and Value text fields. (ECM does not permit you to enter invalid information or duplicate instance IDs.)

When you modify an entry in one of these fields, notice that the Update button becomes enabled. If you want to undo any changes, select the **Undo Typing** option in the Edit menu.

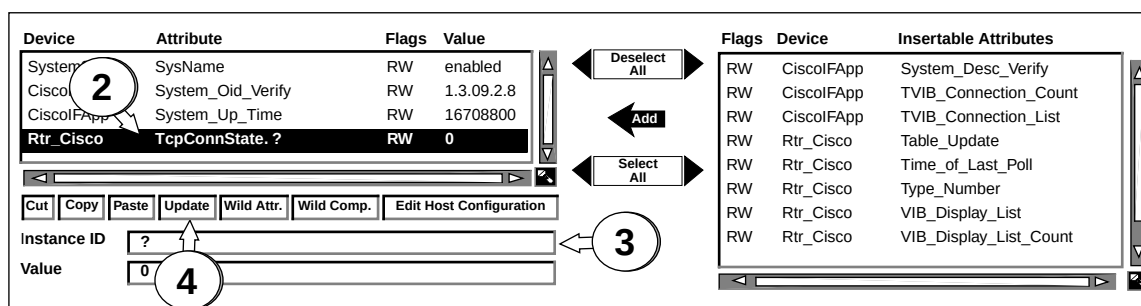
4. After entering the correct values, click on the **Update** button. Update applies the modified values to the Attribute/Value list.

If you want discard changes, select the **Discard All Changes** option in the Edit menu.

5. Repeat Steps 2 through 4 until you have completed the modifications. Then save the configuration by clicking on **Save** or **Save As**.

You will receive error prompts if you try to save the configuration before clicking on the Update button or if you try to close the Configurations window before updating modifications or saving the configuration.

Figure 4-13. Modifying Values and Instance IDs



A Quick Method to Add Attributes with Instance IDs

Attributes with instance IDs require special procedures. When you manually insert an attribute with instance IDs in your configurations, ECM captures (if

possible) all instances of this attribute. Although you may add one entry from the Insertable Attribute list, many instances of the attribute may appear in the Attribute/Value list.

Some configurations require only a few instances of an attribute rather than all the instances that ECM inserts. If this is the case, you might want to use the following method to quickly insert a limited number of instances of an attribute in the configuration. Figure 4-14 illustrates the sequence.

1. Select the attribute with instance IDs in the Insertable Attributes list.

A question mark (?) after an attribute name indicates that it has instance IDs. (These question marks appear only in the Configurations and Add Detail windows — not in the Templates window.)

2. Click on the **Add** button.

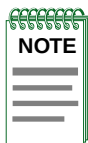
ECM captures all instances of this attribute and inserts them in the Attribute/Value list. The new entries appear highlighted in the list.

3. Do *not* deselect the new entries in the Attribute/Value list. Instead, click on the **Cut** button.

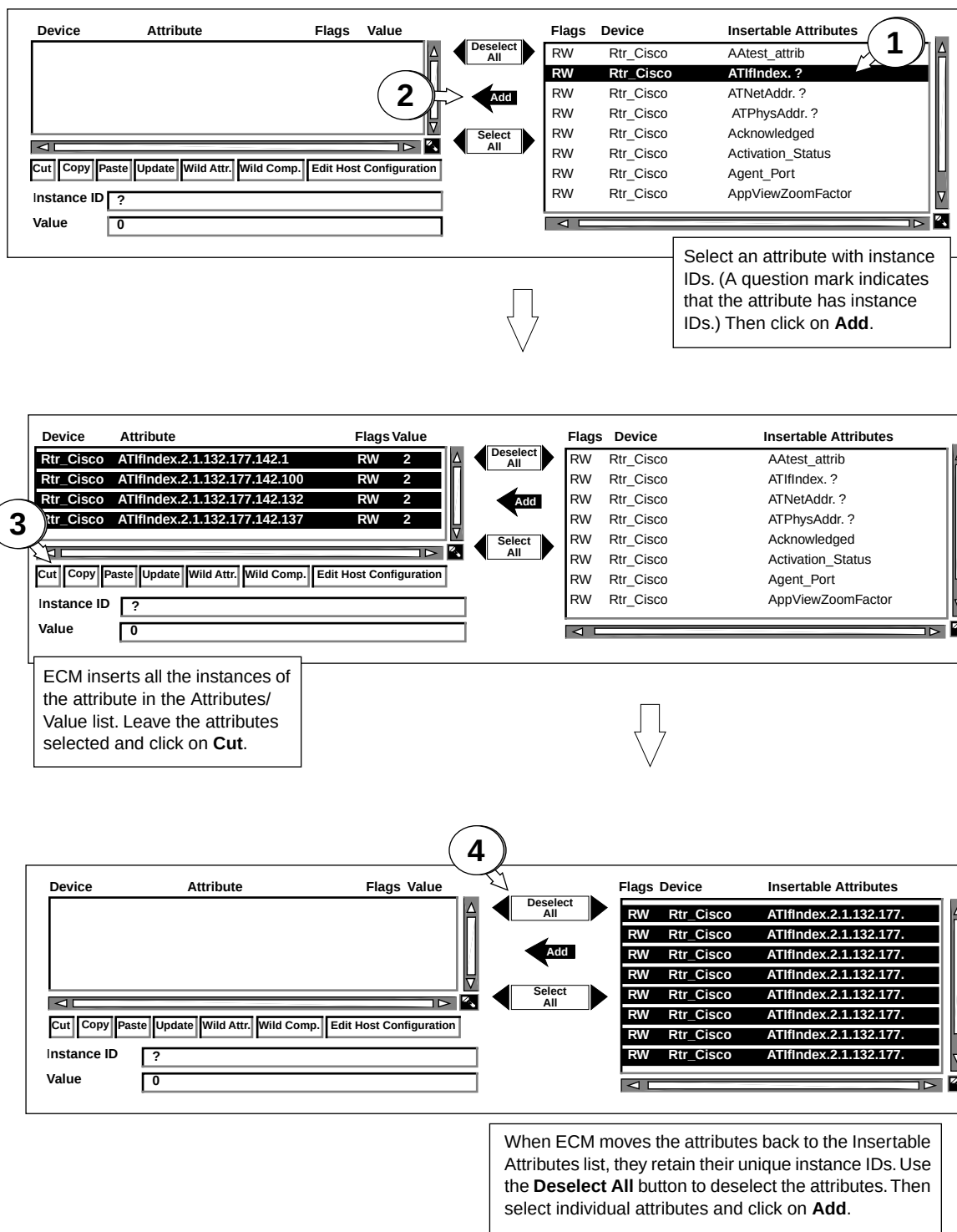
ECM moves the selected attributes back to the Insertable Attributes list. Notice, however, that the attributes retain their unique instance IDs.

4. Click on the right side of the **Deselect All** button to deselect all the attributes that you just moved to the Insertable Attributes list.
5. Now select the specific instances of the attribute that you want to include in the configuration and click on the **Add** button.

The selected instances of the attribute appear in the Attribute/Value list.



You only see the multiple instances of an attribute in the Insertable Attributes list after cutting the attributes from the Attribute/Value list. When you save the configuration or close the Configurations window, the multiple instances disappear from the Insertable Attributes list.

Figure 4-14. Selecting, Adding, and Cutting Attributes with Instance IDs

Applying Wildcard Capability to Attributes

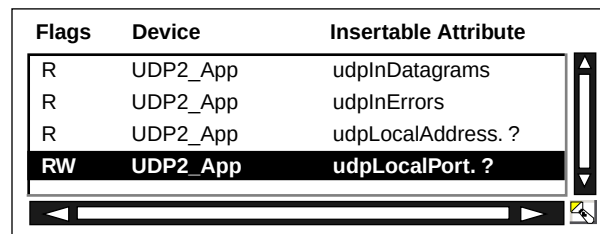
You can wildcard (apply wildcard capability to) list attributes and device-component attributes in a configuration.

List Attributes

A configuration can have attributes with more than one instance in a device component. These are called list attributes.

In the Insertable Attributes list, a list attribute is identified by a *question mark* after its name. In [Figure 4-15](#), the `udpLocalAddress` and the `udpLocalPort` attributes are list attributes.

Figure 4-15. List Attributes in the Insertable Attribute List



Flags	Device	Insertable Attribute
R	UDP2_App	udpInDatagrams
R	UDP2_App	udpInErrors
R	UDP2_App	udpLocalAddress. ?
RW	UDP2_App	udpLocalPort. ?

When you add a list attribute to a configuration, ECM searches the selected device model and adds the appropriate number of attribute instances with their values to the configuration attribute list.

In the configuration attribute list, list attributes are identified by the repetition of the attribute name and the device containing the attribute but with varying ID numbers after each attribute name, identifying the different instances of that attribute. In [Figure 4-16](#), the `udpLocalPort` attribute is a list attribute.

Figure 4-16. List Attributes in the Configuration Attribute List

Device	Attribute	Flags	Value
UDP2_App	udpLocalPort. 0.0.0.0.160	R	160
UDP2_App	udpLocalPort. 0.0.0.0.161	R	161
UDP2_App	udpLocalPort. 0.0.0.0.162	R	162
UDP2_App	udpLocalPort. 0.0.0.0.7	R	7

Device-Component Attributes

A configuration can have the same attribute (though a different instance of it) for each instance of a device component (for example, device ports). These are called device-component attributes.

Both in the Insertable Attributes list and in the configuration attribute list, device-component attributes are identified by a number after the device name, indicating the different instances of the component in the configuration. All of the attributes in [Figure 4-17](#) are device-component attributes.

Figure 4-17. Device-Component Attributes in the Insertable Attribute List

Flags	Device	Insertable Attribute
R	CSIfPort.1	ifOutUcastPkts
R	CSIfPort.1	ifSpeed
R	CSIfPort.1	ifType
RW	CSIfPort.1	ip_address

The attributes listed in [Figure 4-17](#) and [Figure 4-18](#) apply only to port 1. After the listing for port 1, you could have a listing for port 2 with all the same insertable attributes, and so on.

Figure 4-18. Device-Component Attributes in the Configuration Attribute List

Device	Attribute	Flags	Value
CSIIIFPort.1	ip_address	RW	0.0.0.0
CSIIIFPort.1	ifSpeed	R	10000000
CSIIIFPort.1	Message_Size	RW	1500
UDP2_App	udpLocalPort. 0.0.0.0.160	R	160

List and Device-Component Attribute Combinations

Some attributes can be both a list attribute and a device-component attribute. In this case, you can wildcard both the device-component value and the list-attribute value.

In [Figure 4-19](#), the Out_Octets attribute is an example, having both its attribute list wildcarded and the device containing it wildcarded. It can be contained in more than one port and it can have more than one instance on a port.

Figure 4-19. A List and Device-Component Attribute Combination

Device	Attribute	Flags	Value
CSIIIFPort.*	Out_Octets.*	R	1046445135
CSIIIFPort.2	Out_Octets. 4	R	1443089018
UDP2_App	udpLocalPort. 0.0.0.0.160	R	160
UDP2_App	udpLocalPort. 0.0.0.0.161	R	161

The Advantages of Wildcarding

Wildcarding has the following advantages:

- Wildcarding reduces the number of instances of an attribute that you may need in a configuration.

A wildcarded attribute in a configuration enables you to use one instance of the attribute in a configuration to load the *same value* into many instances of the attribute in a device.

This reduces the number of instances of a device-component attribute you may need in a configuration.

- If a device has added or removed components of a wildcarded attribute, the configuration will still load without error.

What Happens When Loading a Wildcarded Attribute

When you load a configuration with a wildcarded attribute, ECM inserts the *same value* in each instance (or only in several, if so specified — see the following note) of that attribute in the device.



A wildcarded attribute is order dependent. For example, say you have 12 instances of an attribute in a configuration. If you wildcard the first instance of this attribute but leave all the other instances as is, when you load the configuration, ECM first loads the wildcard value in each instance and then replaces that value as it loads the other instances. This cancels the effect of the wildcard. Likewise, if you had placed a wildcarded instance last in an attribute instance list, ECM loads the wildcard value in all the instances of the attribute that preceded it, cancelling any other values.

How to Wildcard a List Attribute

To wildcard a list attribute:

1. Add the list attribute to the attribute configuration list.

ECM searches the selected device model and adds the appropriate number of attribute instances with their values to the configuration attribute list.

2. Select **View by Sequence** from the View menu. (If you do not select this view, ECM places the wildcarded attribute at the top of the list of instances for this attribute when you wildcard the attribute.)
3. Select an instance of the list attribute in the configuration list after the instances whose values you want to remain unique.

Selecting a *list attribute* instance in the configuration attribute list enables the **Wild Attr.** button.

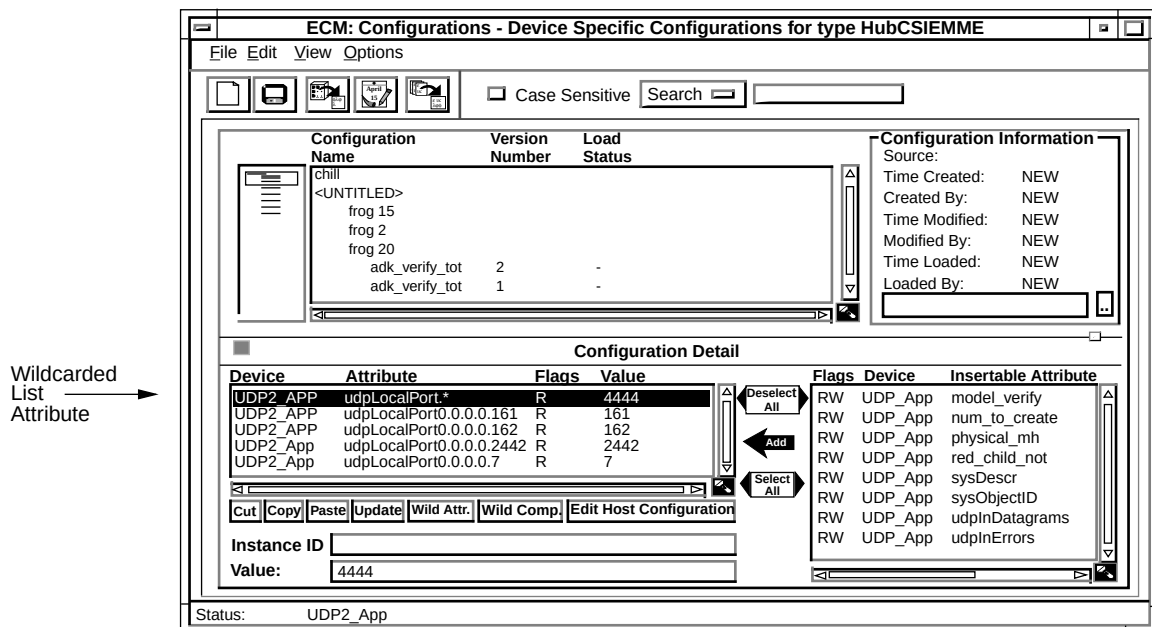
4. Click on **Wild Attr.**, or put an asterisk in the Value field box and click on **Update**.

5. If needed, edit the value of the selected, wildcarded attribute in the Value text box, and click on **Update**.

After you have wildcarded a list attribute instance, an *asterisk* appears to the right of the attribute instance name in the attribute configuration list, indicating that it is now a wildcarded attribute. In [Figure 4-20](#), **udpLocalPort** is an example of a wildcarded attribute.

6. With the **Cut** button, remove the instances you no longer need.

Figure 4-20. An Example of a Wildcarded List Attribute



How to Wildcard a Device-Component Attribute

To wildcard a device attribute:

1. Add it to the configuration attribute list.

When you add a device component to a configuration, ECM searches the selected device model and adds the appropriate number of component instances with their values to the configuration.

2. Select *View by Order* from the View menu. (If you do not select this view, ECM places the wildcarded attribute at the top of the list of instances for this attribute when you wildcard the attribute.)

3. Select an instance of the attribute in the configuration attribute list after the instances whose values you want to remain unique.

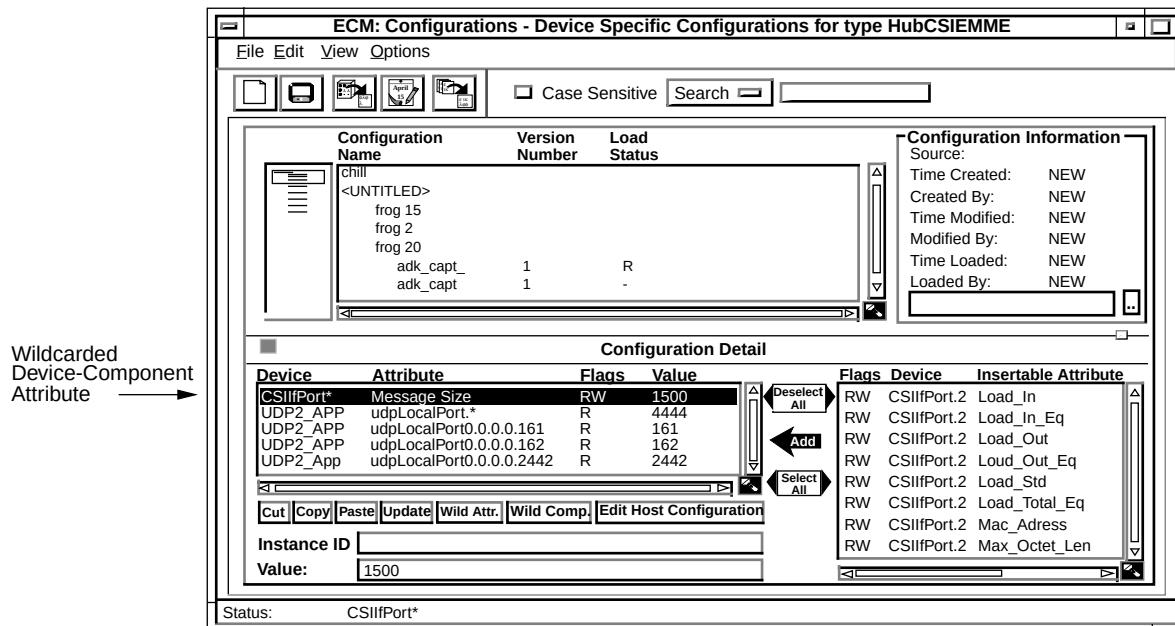
Selecting an attribute having a *device component* instance in the configuration attribute list enables the **Wild Comp.** button.

4. Click on Wild Comp., or put an asterisk in the Value text box and click on Update.

After you have wildcarded a device-component attribute instance, an *asterisk* appears to the right of the attribute instance name in the *configuration attribute list*, indicating that it is now a wildcarded attribute. In [Figure 4-21](#), udpLocalPort is a wildcarded attribute.

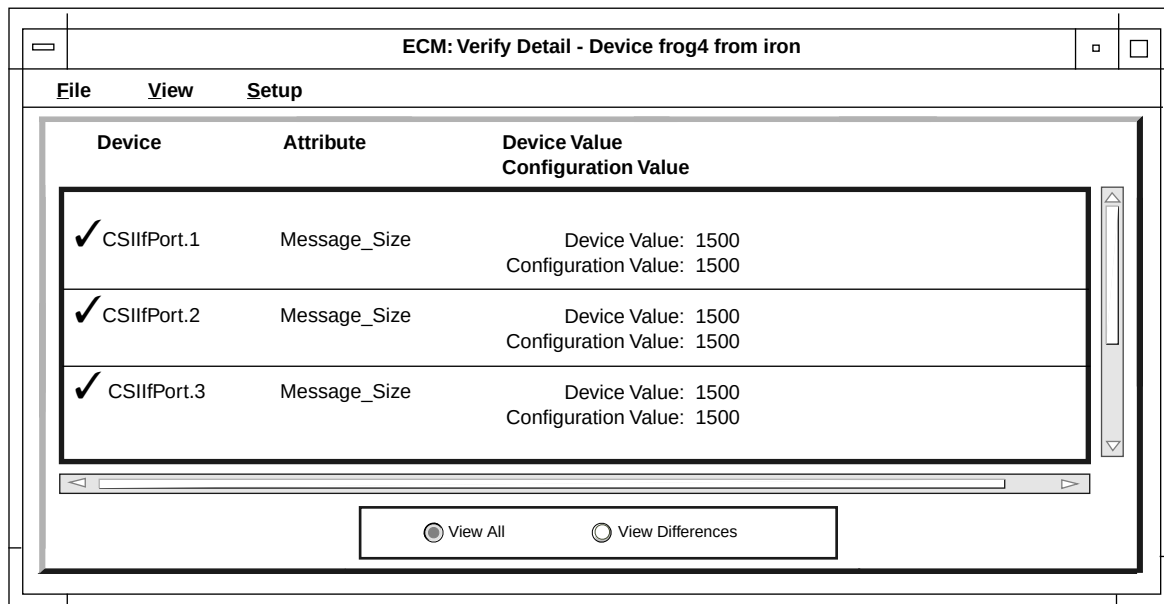
5. With the Cut button, remove the instances you no longer need.

Figure 4-21. An Example of a Wildcarded Device-Component Attribute



Verifying a Configuration Having Wildcarded Attributes

After you load a configuration having wildcards and then verify it, the Verify Detail results window displays each instance of a wildcarded attribute with its values. For example, [Figure 4-22](#) shows that the CSIIfPort component of device frog4 has an ip_address attribute wildcarded with the value 132.177.00.00.

Figure 4-22. A Verify Detail of a Wildcarded Attribute

How to Duplicate Attributes with Instance IDs

You can create entries in the Attribute/Value list by using the Copy and Paste buttons. For example, if you want to include more instances of an attribute in the configuration than ECM provides, you have to create a duplicate entry. You also need the Copy button if you are editing a configuration and the attribute is no longer displayed in the Insertable Attributes list because instances of the attribute are already in the configuration.

If you want to add an attribute with instance IDs to the configuration and you do not see the attribute in the Insertable Attributes list, follow these steps:

1. Select the attribute that has an instance ID in the Attribute/Value list.

Once you select this attribute, the Copy button and the Instance ID and Value fields become enabled. See [Figure 4-23](#). If the Copy button remains grayed-out, check to see if you have more than one attribute selected. If not, make sure the selected attribute has instance IDs.

2. Click on the **Copy** button.

ECM puts a copy of the attribute in the paste buffer.

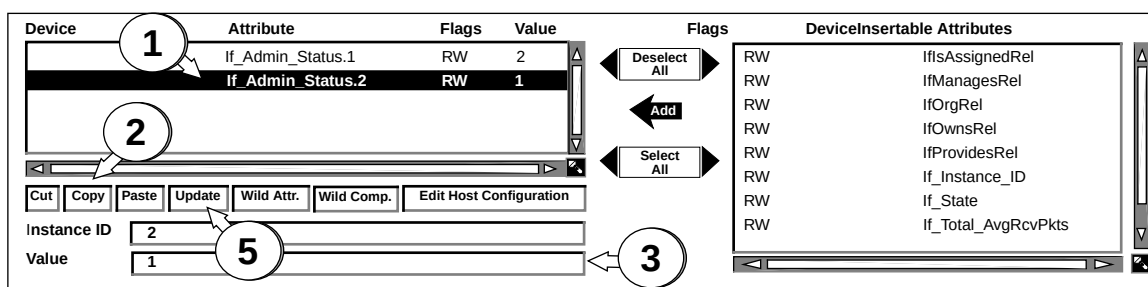
3. Click on the **Paste** button.

ECM puts an exact duplicate of the attribute (including a duplicate instance ID) in the list. (When you perform a Paste operation, the **Undo** option in the Edit menu becomes renamed as **Undo Paste**. Until you perform some other operation, you can undo this duplication action by clicking on that **Undo Paste** option.)

4. Modify the duplicate attribute's value as necessary by typing the new value into the Value field in the lower left corner. ECM does not permit you to update the configuration until some different value has been entered; the **Update** button remains grayed out until you enter the data. (When you enter data into the field, the **Undo** option on the Edit menu becomes renamed as **Undo Typing**, and you can cancel this input, up until the time you perform the following update operation, by selecting that **Undo Typing** option.)
5. Then click on the **Update** button to apply your change to the Attribute/Value list. (When you activate the **Update** function, whether on the Edit menu or by clicking on the **Update** button, the **Undo** option on the Edit menu becomes renamed as **Undo Update**; if you decide to discard this change, up until the time that you save the modified file, you can click on that **Undo Update** option.)
6. Save the configuration by clicking on **Save** or **Save As**.

You will receive error prompts if you try to save the configuration before clicking on the **Update** button or if you try to close the Configurations window before updating modifications or saving the configuration.

Figure 4-23. Duplicating an Attribute with Instance IDs



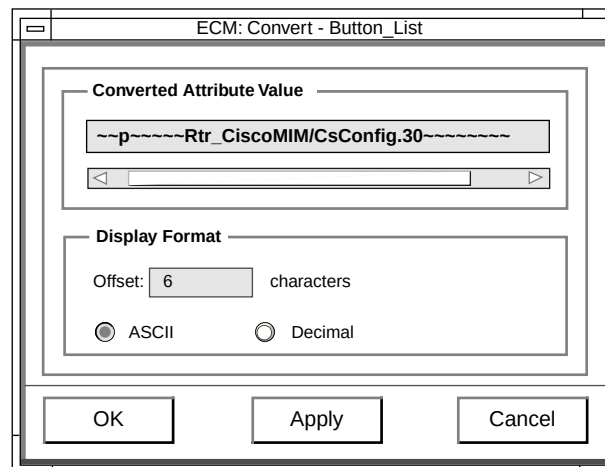
Converting Hexadecimal Values to ASCII or Decimal

In ECM, the values of Octet and Tagged Octet attributes appear in hexadecimal format. To make editing possible, ECM provides a Convert dialog box that allows you to format these values in either ASCII or decimal and then edit them in that format. When you apply these changes to the configuration and return to the Configurations window, ECM converts the edited values back to hexadecimal.

To edit the values of Octet or Tagged Octet attributes, follow these steps:

1. Select the Octet or Tagged Octet attribute that you want to modify. When you select one of these attributes, the Values button becomes enabled.
2. Click on the **Values** button. A Convert dialog box, similar to that in [Figure 4-24](#), appears.
3. If you want to view characters in a certain part of the string, specify an Offset value so that ECM displays that section of the string.
4. Select either ASCII or decimal format.
The text field now displays the attribute value in the format you specified.
5. Edit the value by deleting text or typing directly in the text field.
(The OK and Apply buttons are grayed-out until you modify the value.)
6. Click **OK** to apply the changes and close the Convert dialog box.
The Values field of the Configurations window now includes the new value converted back to hexadecimal.
7. Click on the **Update** button in the Configurations window to insert the new value in the Attribute/Value list.

Figure 4-24. The Convert Dialog Box



Making a Configuration Device Specific

Why Device Specific?

ECM allows you to make a configuration specific to one device. By doing this, you can prevent users from accidentally loading certain configurations to the wrong device.

If your configuration includes attributes that are unique to the device — an IP address, for example — you should make the configuration device specific.

How To Tell a Configuration Type

You can see the different type of configurations by changing the view mode of the window. The title bar in the Main and Configurations windows indicates whether the configurations in that window are shared or device specific.

By Default a Cisco Host Configuration is Device Specific

There is only one type of configuration that is device specific by default. It is the configuration — captured with a template — that includes a Cisco host configuration.

Configurations that are *not* device specific appear in the configurations lists of all devices of the same type. Because of this, you can use these configurations to verify and load other devices of the same type. Configurations that *are* device specific appear only in the Device Specific windows of the one device.

To Change a Configuration Type

To make a configuration device specific or change the device specific status of a configuration, follow these steps:

1. In the Configurations window, select the configuration name.



2. Click on the **Move to Specific Device** button or option.

A confirmation box appears.

3. Click on **Yes** in the confirmation box.

Notice, that you did not have to save the configuration.



Although it is easy to make a device specific configuration shared, you should be very careful if you do so. Remember that you are making the configuration available to all other devices of that device type. If a user loads this configuration to the wrong device, the device's configuration could be damaged.

Comparing Two Configurations

The Compare operation, unlike the other operations in this chapter, is performed in the ECM Main window. ECM is designed this way so that users with restricted privileges (ECM, 3 - 9) can compare configurations.

To compare two configurations, follow these steps:

1. Open the ECM Main window.

2. Select the two configurations that you want to compare. (Hold down the CONTROL key and click on the two entries.)

The Compare option and button become enabled at this time.



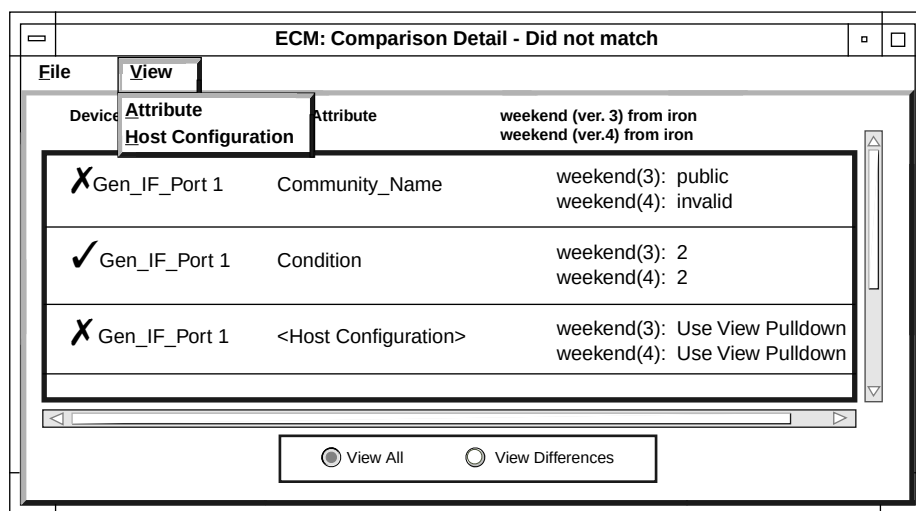
3. Click on the **Compare** option or button.

A Comparison Detail window, similar to that in [Figure 4-25](#), appears. Attributes are displayed with either **X**s or **✓**s in front of them. An **X** indicates that the values of the two attributes do not match. A **✓** indicates that the values match.

4. Click on the View buttons, **View All** and **View Differences**, to toggle between the different views.
5. If the configuration also includes Cisco router host configurations, click on the **Host Configuration** option in the View menu so that you can view a comparison of the two host configurations.

The Comparison Detail dialog box for the host configurations appears.

Figure 4-25. Comparing Two Configurations



Deleting a Configuration

To delete one or more configurations, follow these steps:

1. Select one or more configurations. To select multiple configurations, hold down the CONTROL key and click on the configurations.
2. Click on **Delete** in the File menu.

ECM displays a message box asking you to confirm the deletion.

3. Click on **Yes** in the message box.

ECM deletes the configuration(s).

Printing a Configuration

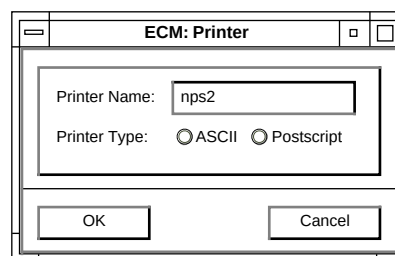
ECM saves the most recent version of each configuration. But once you delete or modify a configuration, the original is lost unless you have saved it with a different name. Because of this, you may want to print your configurations for your records.

To print a configuration, follow these steps:

1. In the Configurations window, select the configuration and then click on **Print** under the File menu.

A Printer dialog box, similar to that in [Figure 4-26](#), appears.

Figure 4-26. The Printer Dialog Box



2. Specify the name of your printer and the printer type — either ASCII or PostScript — and confirm your selection by clicking on **OK**. (The order of these steps differs slightly depending on the machine that you are working with.)

ECM prints out a Configuration Report. See the sample printouts in [Figure 4-27](#).

Figure 4-27. Sample Printouts of ECM Configurations

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Configuration Listing for Cisco_config (ver.2) from acorn <table> <tr> <th>Attribute</th><th>Value</th></tr> <tr> <td>Community_Name</td><td>public</td></tr> <tr> <td>ContactPerson</td><td>Maple</td></tr> <tr> <td>Contact_Status</td><td>1</td></tr> <tr> <td>DeviceType</td><td>CiscoMIM</td></tr> <tr> <td colspan="2"><Host Configuration></td></tr> </table>	Attribute	Value	Community_Name	public	ContactPerson	Maple	Contact_Status	1	DeviceType	CiscoMIM	<Host Configuration>																																																												
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Creating and Editing the Cisco Host Configuration

If you are working with a Cisco router, the Configurations window enables you to capture the Cisco host configuration with a template, then view, edit, and print the host configuration. Remember the following points when creating configurations for Cisco routers:

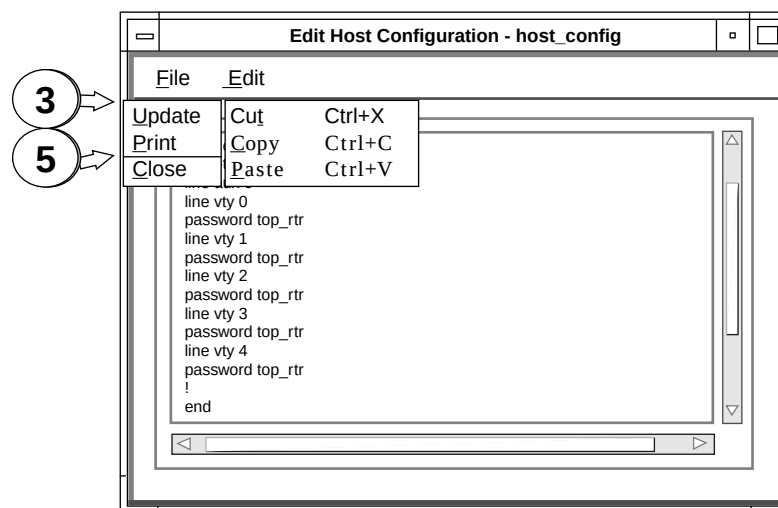
- You can create a configuration that includes the entire Cisco host configuration by capturing the host configuration with a template. This process is described in [Special Options for Cisco Router Templates](#), starting on Page 3-20. If necessary, you can also edit the host configuration after you capture it.
- Or you can manually add individual host configuration commands to a configuration that does not include the host configuration. ECM allows you to load individual host configuration commands to the device. You do not have to load the *whole* host configuration to a device. ECM also inserts the command in the proper line in the host configuration.

Follow these steps to edit or insert commands in the host configuration:

1. In the Configurations window, select the Cisco router configuration.
2. Click on the **Add/Edit Host Configuration** button at the bottom of the window.

An Edit Configuration window appears. See [Figure 4-28](#). If the configuration includes the host configuration this window displays it. Otherwise the window is empty.

Figure 4-28. The Edit Host Configuration Window



3. Click the mouse in the text field so that you see the blinking cursor, and then insert or edit text.
 - If the host configuration exists, simply delete or add text.
 - If the Edit Host Configuration window is empty, type in the appropriate commands. (Make sure that you use the correct syntax for Cisco commands; (ECM does not check the syntax.) Later, when you load this configuration to a device, these commands will be added to the proper line in the device's host configuration.

You can use the Edit menu options to facilitate the process of reworking an existing host configuration, to delete an unwanted host configuration, or to make a copy of any existing configuration (either here or to/from another ECM setup). When you are wish to change the text in an existing host configuration, you can double-click in a term to highlight it, or sweep the mouse through a sequence of terms to highlight the entire sequence, or triple-click anywhere in the text to highlight the whole entry.

- If you then click on the **Edit > Copy** option (or use the **Ctrl+C** keyboard shortcut), the program copies the highlighted text to the paste buffer, leaving the highlighted material in place.
- If you click on the **Edit > Cut** option (or use the **Ctrl+X** keyboard shortcut), the program copies the highlighted material to the buffer, removing it from its current location.
- You can then move the cursor to a different location and click on the **Edit > Paste** option (or use the **Ctrl+V** shortcut) to deposit the copied text at that location.

The buffer acts as a conventional clipboard; whatever is last copied or cut is the only thing that is available for reconstruction with the paste option.

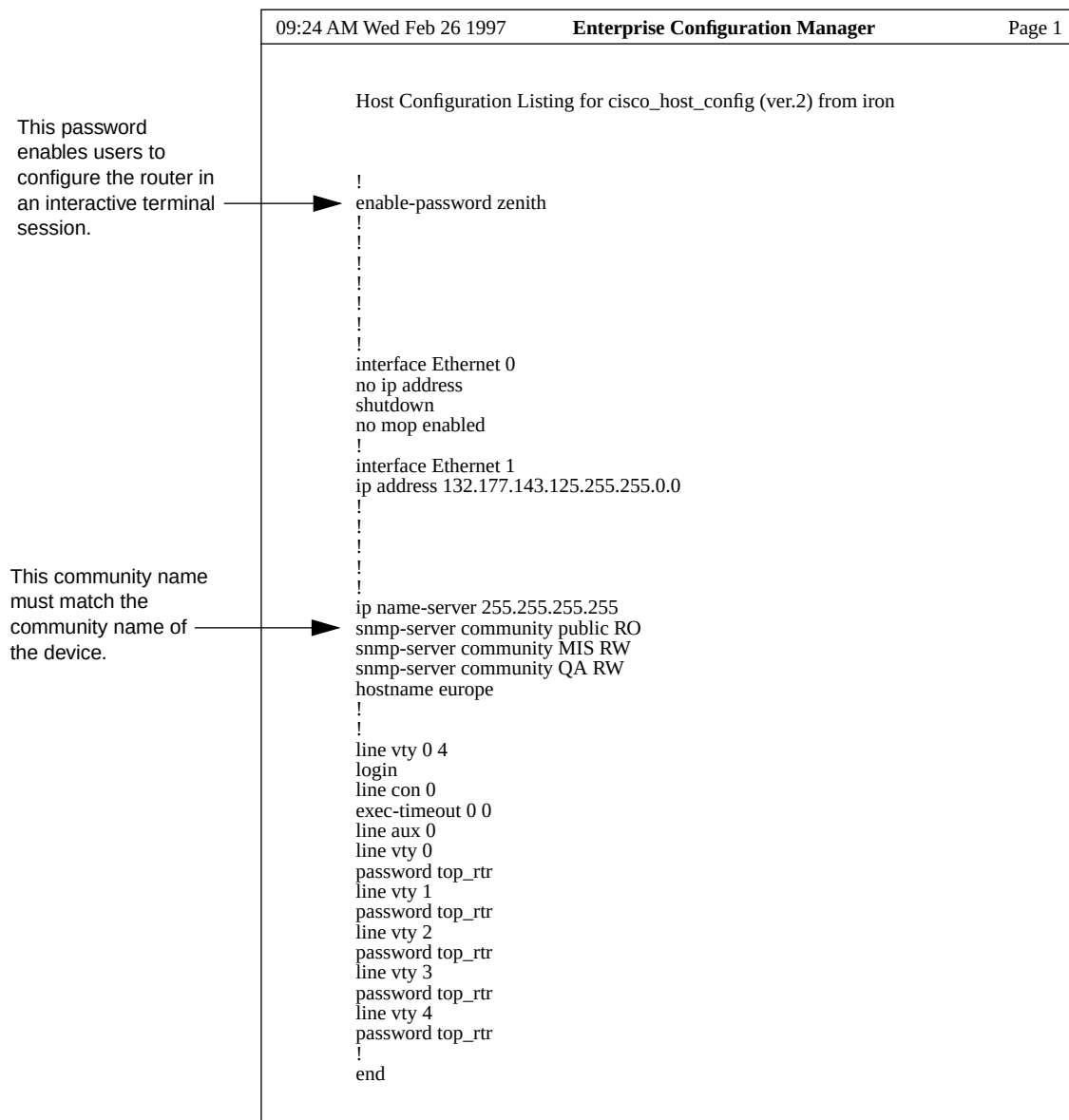
4. When you are finished, select the **Update** option in the File menu.

The Update option copies the edited host configuration into the buffer so that it will be saved when you save the ECM configuration in the Configurations window.

5. If you want a printout of the new configuration for your records, you can click on the **Print** option in the File menu. [Figure 4-29](#) shows a sample printout of the host configuration file.
6. Click on the **Close** option in the File menu to close the window and return to the Configuration window.
7. Then use the Configuration window's **File > Save** or **Save As** option to save the host configuration with the ECM configuration.

The **Save** options save the ECM configuration, including the host configuration.

Figure 4-29. PostScript Printout of a Cisco Host Configuration



Viewing and Editing the Host Configuration Passwords

In both the Configurations and ECM Main windows, there are Host Configuration buttons that give you access to the Cisco host configuration. However, you can view and edit the host configuration password only when you access the host configuration from the Configurations window.

Use the Edit Host Configuration and View Host Configuration windows at these times:

- The Edit Host Configuration window — opened via the Add/Edit Host Configuration button in the Configurations window — allows you to view and edit host configuration passwords. The Edit Host Configuration window is the only ECM window where the passwords are visible. To work in this window, users must have ECM privileges of ECM,0 - 2.
- The View Host Configuration window — opened via the View Host Configuration button in the ECM Main window — allows you to view the host configuration. However, all passwords are hidden. The words **<password hidden>** appear in the place of the password. All ECM users can view this window.



Chapter 5

Loading a Configuration

This chapter explains how to load a configuration in one procedure to one or more devices of the same type.

In This Chapter

- [*Selecting Devices and Configurations*](#)
Ways to specify configuration(s) to load and devices to be loaded.
- [*Load Procedure — Summary*](#)
A quick view of the load procedure for all types of configurations and devices.
- [*Load Options — Summary*](#)
A list of all options when you load a configuration.
- [*Device Landscapes, Buttons, Codes, and Settings*](#)
Selecting landscapes for devices and configurations and function descriptions of the load buttons, the load status codes, and the load settings.
- [*Loading Device Specific Configurations*](#)
How to load a device specific configuration.
- [*How to Change a Device Specific Configuration to a Shared One*](#)
How to change the type of configuration.
- [*Loading Shared Configurations*](#)
How to load a shared configuration.
- [*Logging, Finding, and Printing Load Results*](#)
How to find logged ECM events and how to find and print load results.
- [*What to Do When a Load Fails*](#)
What can cause a load failure and how to fix it.
- [*Special Load Information for Cisco Routers*](#)
How ECM loads Cisco host configurations.

Selecting Devices and Configurations

How to Select Devices of Different Types

In ECM, you can load configurations in one procedure to one or more devices *of the same type* in the selected landscape(s). This means:

- To choose a different type of device from the one selected in SPECTRUM, you must exit ECM, select a device of the type you want in SPECTRUM, and return to ECM. For example:

1. In ECM, you might have loaded configurations to a set of Cisco routers: say Cisco70, Cisco71, and Cisco72. The router type might be called Rtr_CiscoIGS.

In this case, the only type of configurations that ECM will display in the selected landscapes in either the device specific or shared configurations windows are those for Cisco routers of type Rtr_CiscoIGS.

2. To next load some configurations to one or more hubs in the same landscapes, you must exit ECM, select one of those hubs in SPECTRUM, and then re-enter ECM.

Further, if you are configuring hubs of one type, say Cabletron EMME hubs (labeled type Hub_CSIEMME), and then want to configure hubs of another type, (either from Cabletron or elsewhere), you also have to exit ECM and in SPECTRUM select a hub of the type you want to configure.

- To choose a *subcomponent type* of the device selected in SPECTRUM, click on the Navigate Components option from the Options menu in the ECM Main window. For example, if you have selected a hub, from the Navigate Components option, you can go to and configure the boards in the hub without having to exit ECM.

Two Ways to Specify Configurations

Once you have created a configuration either with or without a template, you can load that configuration from the ECM Main window in *one* of the following two ways, depending on its *type*:

- As device specific (see [Loading Device Specific Configurations](#), on Page 5-15).
- As shared (see [Loading Shared Configurations](#), starting on page 5-23).

If you have a device specific configuration that you want to load to more than one device, you must make it a shared configuration before you can load it (see

[How to Change a Device Specific Configuration to a Shared One](#), on
Page 5-21).

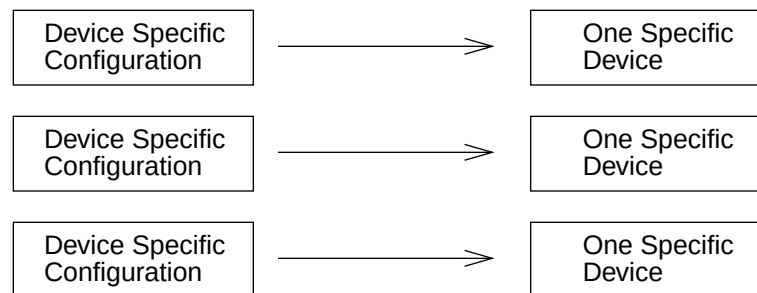
Three Ways to Specify Devices to be Loaded

Once you have chosen either *device specific* or *shared* configuration(s) as your type of configuration (by going to the appropriate option in the ECM Main window), you then have the following ways to load the configuration(s) to a device(s) of the type selected in SPECTRUM:

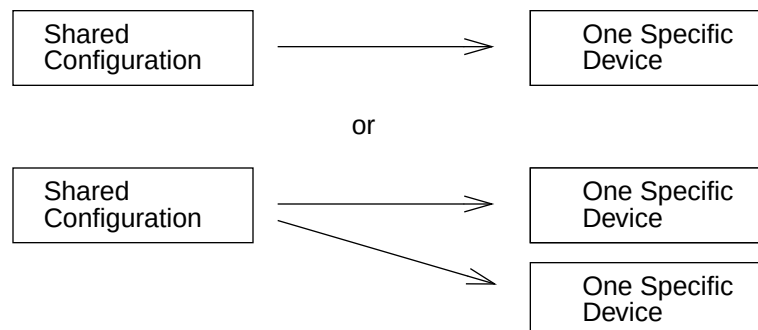
- As one device specific configuration to one specific device — a one to one load.



- As many device specific configurations to many specific devices on a one to one basis — a many to many load.



- As one shared configuration to one or many devices of the same type — a one to one or a one to many load.



Load Procedure — Summary

Though the load procedure differs slightly depending on whether the configuration is device specific or shared, the basic steps are the same:

1. Select the configuration you want to load. If you are loading device specific configurations, you can select more than one configuration at a time.
2. Select the devices to which you want to load. With device specific configurations, this step is unnecessary if a configuration(s) was previously loaded to a device. With shared configurations, this step is unnecessary if the preselected device is the one you want.

With shared configurations, this step can be switched with step one. The order does not matter.

3. Click on the Load button. At the question box prompt, check/select load options, and click Yes.
4. View the results. If there are any problems, view and print the result details for your records and analysis.
5. Close the result window(s).

Load Options — Summary

The following list summarizes ECM options/features. You should be aware of these when loading configurations:

- Selecting Landscapes

You can perform regular and scheduled loads and verifications of configurations to their respective devices without having to get out of ECM to select the individual devices from the SpectroGRAPH:

- From the Preferences option of the Options menu, you can select all the landscapes containing the configurations you want to load and all the landscapes containing the devices you want to configure (see [Specifying ECM Preferences/Settings](#), starting on Page 2-4).
- You can store configurations (as backups, for example) on a landscape separate from that to which you load them.
- Once you select the landscapes you want, they will be displayed, along with their configurations and devices, in the appropriate ECM window.

- Selecting a Configuration Type

There are two types of configurations: device specific and shared. You can view either type from the Main window by selecting the type from the View menu:

- The default window is *Shared* unless you change the default. Viewing the types separately helps prevent confusion.
- You can change a device specific configuration to shared or a shared one to device specific. These are options in the ECM Main window Options menu.

You load a configuration from the window in which you see it: Device Specific or Shared (see [Loading Device Specific Configurations](#), on Page 5-15 and [Loading Shared Configurations](#), on Page 5-23).

- Viewing device specific Configurations

Device specific configurations are displayed as nested under the devices to which they are loaded. Devices are further nested under the landscapes to which they belong. This is a three-level hierarchy. Unloaded configurations are displayed under the landscapes in which they are stored. See [Figure 5-3](#) on Page 5-17.

- Viewing Shared Configurations

Shared configurations are displayed as nested under the landscape to which they belong. This is a two-level hierarchy (see [Figure 5-7](#) on Page 5-25):

- The devices you select for loading a shared configuration are displayed separately in a list box below the configuration list box, since shared configurations are loaded to all of the selected devices.
- The device name that appears in the device list when you open this window is either the device you selected when you invoked ECM from SPECTRUM or the device component you selected from the ECM Navigate Components option of the Main window.
- To choose other or more devices (than the one first displayed), you click on the Choose button next to the device list box and then select the devices to which you want to load.

- Checking Configuration Version Numbers and Load Status

Displayed next to each configuration is its version number and its load status (see [Figure 5-2](#) on Page 5-10):

- Version numbers start with 1 and increase with each save. This helps you track configurations.
- You have the option of overwriting a configuration without changing its version number or of creating a new configuration (with a new name) from an existing configuration, without changing the version number of the existing configuration.
- Load status is **L** for loaded, **P** for partially loaded, **R** for rolled back, and - for not loaded. If a configuration attribute(s) [feature(s)] cannot be loaded and the Safe Load option is OFF, the configuration will be partially loaded. If the Safe Load option is ON and a configuration

attribute cannot be loaded, the configuration will be R (rolled back). That is, the original configuration will be replaced in the device.

- Doing a One-to-One or a Many-to-Many Device Specific Load

In a device specific load, you can load a configuration to one specific device or load many device specific configurations to many devices of the same type, on a one to one basis in the selected landscape(s).

- Doing a One-to-One or a One-to-Many Shared Load

In a shared load, you can load a configuration to one or to many devices of the same type in the selected landscape(s).

- Doing a Backup-First Load

In the Load operation, if you so choose, ECM will capture and store the current device configuration as a backup before loading a new configuration (see [Store Before Load](#), on Page 5-12).

- Loading Without the Rollback Option

In the Load operation, if you so choose, ECM will continue the load if it cannot load one or more attributes (see [Load Settings](#), on Page 5-11).

In this case, the configuration is displayed as:

- “Not Loaded” — if no attributes could be loaded
- “Partially Loaded” — if one or more attributes could not be loaded

By looking in the Load Result Detail window after the load, you can see what attributes did not load. By printing out this list you can save it for analysis to fix the problem.

- Safe Loading with the Rollback Option

In the Load operation, if you so choose, ECM will stop the load if it cannot load one or more attributes. It will then roll back the original configuration; or, if for some reason it cannot roll back all the original attributes, it displays a list of those attributes it could not roll back in the Rollback Load Failure Detail window (see [Safe Load](#), on Page 5-12).

In this case, the configuration is displayed as:

- “Rolled Back” — if the roll back is successful
- “Not Loaded” — if the first attribute couldn’t be loaded
- “Rollback Failed” — if an attribute could not be rolled back
- “Partially Loaded” — if the configuration contains a Cisco host configuration and that did not load.

By looking in the Load Result Detail window and (if you have a rollback failure) in the Rollback Load Failure Detail window, you can see what

attributes did not load. By printing out this list you can save it for further analysis so that you can fix the problem.

- Viewing Load Results

After a load, you can view the load summary results in the Load Results window and the load detail results (the attributes and the load status of each) in the Load Detail and Rollback Failure windows.

For a device specific configuration example, see [Figure 5-4](#) on Page 5-19 and [Figure 5-5](#) on Page 5-20. For a shared configuration example, see [Figure 5-11](#) on Page 5-29 and [Figure 5-12](#) on Page 5-30.



An attribute which is READ-ONLY cannot be loaded. The detail result will show operation is not applicable. This, however, does not affect the load status of the configuration.

- Logging Load Results

The load summary results are stored in the SPECTRUM Event Log (see [Logging Load Results](#), on Page 5-31).

- Printing Load Results

After a load, you can print Load Results and Load Details for your records and analysis (see [Figure](#) on Page 5-32).

- Modifying Load Failure Alarms

You can modify or turn off the Load Failure alarms that appear in SPECTRUM (see [What to Do When a Load Fails](#), on Page 5-35, and [Understanding and Modifying ECM Alarms in SPECTRUM](#), starting on Page 9-9.)

Device Landscapes, Buttons, Codes, and Settings

You should understand the following ECM Main window (the load window) landscapes, buttons, status codes, and settings before you load a configuration:

- Device landscapes for locating configurations and devices
- Load button
- Clear Load-Status button
- Load status codes
- Load setting options

- “Rollback on Load Failure (Safe Load)”
- “Store Device Configuration Before Load”

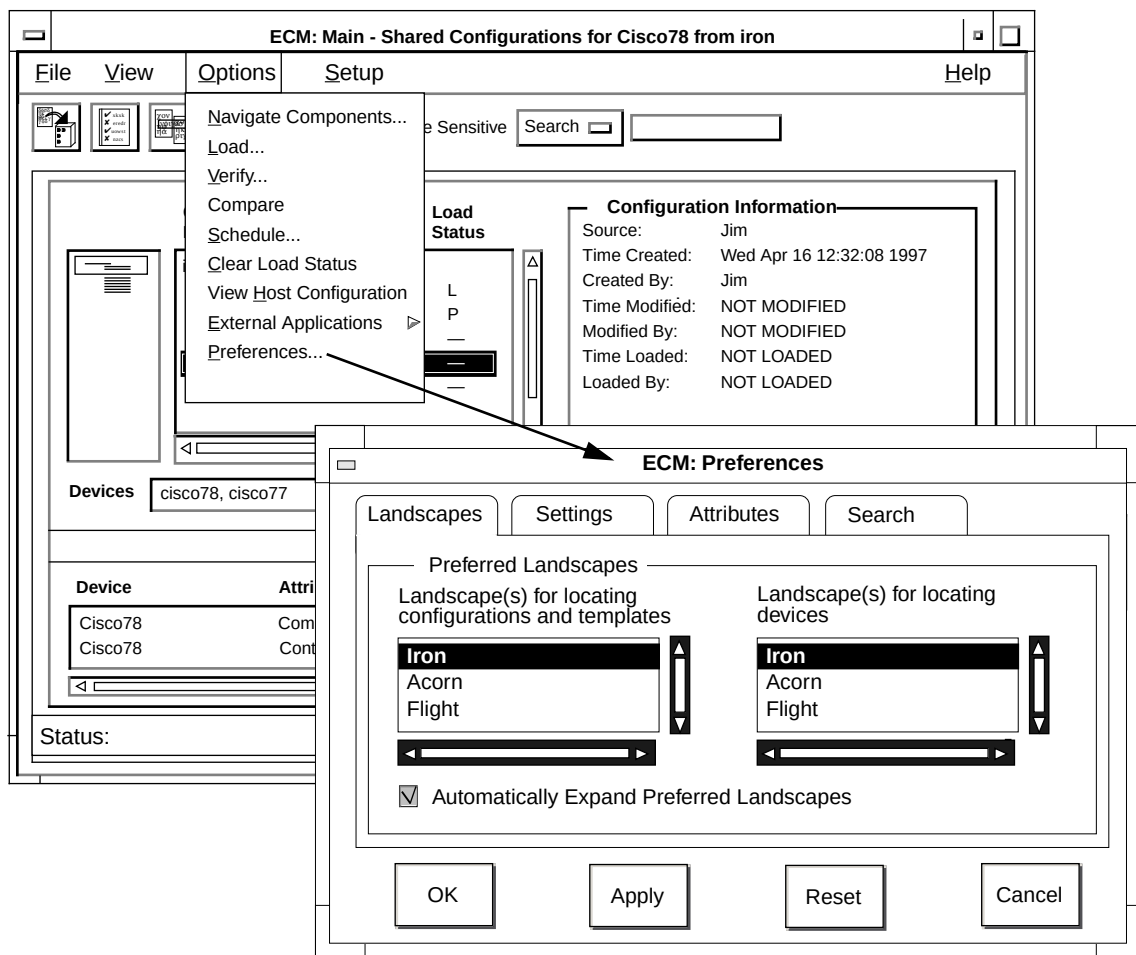
Device Landscapes

If the preselected landscapes are not what you want, from the Options menu in the Main window, select the Preferences option to specify the device landscapes.

The Landscapes tab in the Preferences dialog box (see [Figure 5-1](#)) enables you to select which landscape to load and verify configurations from and which landscapes to configure devices in.

In the figure, only **iron** has been selected.

Figure 5-1. Landscapes for Locating Configurations and Devices



Load Button



This menu option/button begins the load process.

Load Status Codes

The **Load Status** column in the ECM Main and Configurations windows indicates the load status of your configurations. See [Figure 5-2](#).

When you create and load configurations, ECM dynamically updates their Load Status in both the Main and Configurations windows.

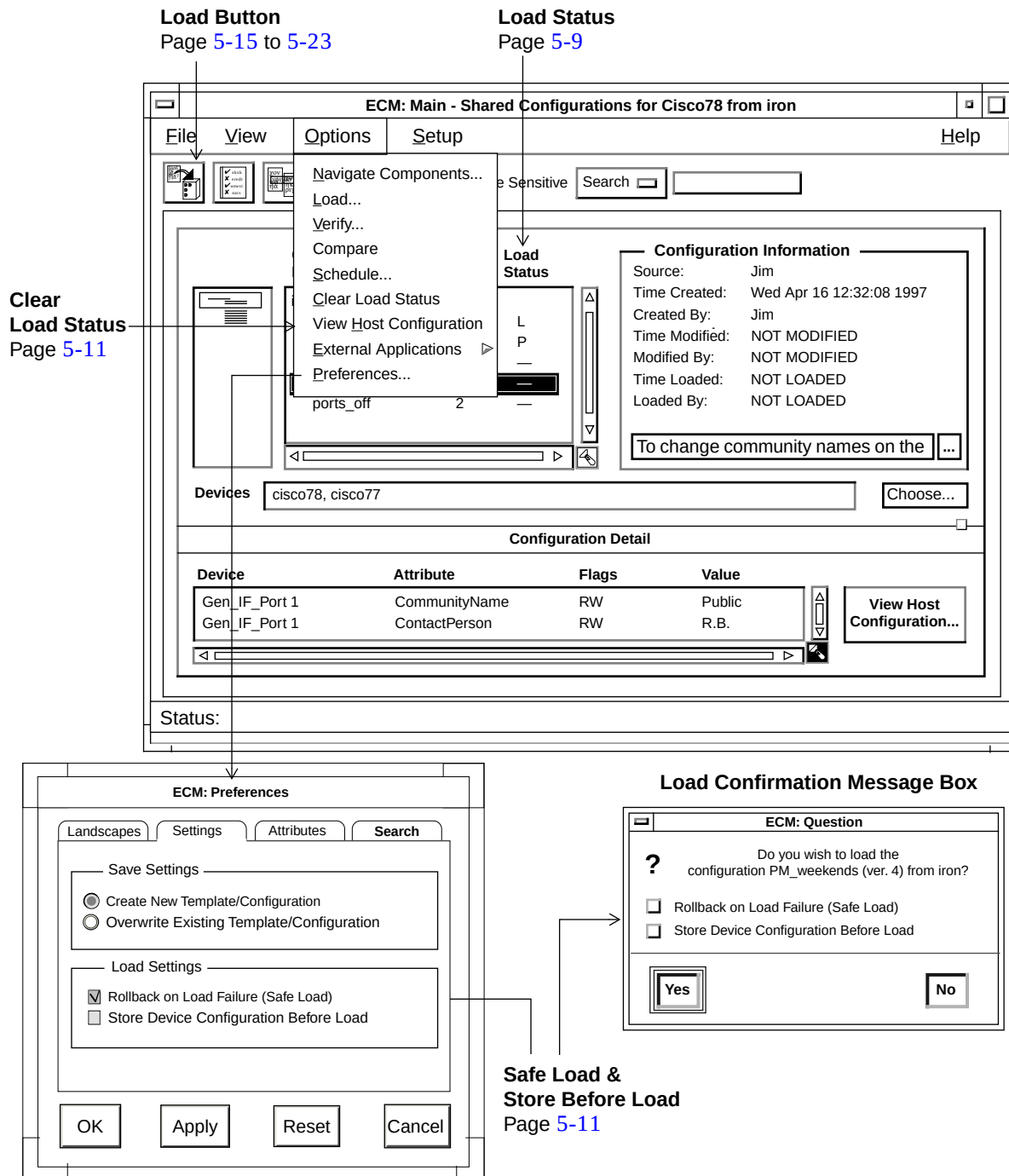
The Load Status column contains the following status codes.

Status Code	Meaning	Description
L	Fully Loaded	The configuration with all its attributes is loaded to the device.
—	Not Loaded	The configuration is not loaded. See What to Do When a Load Fails , on Page 5-35 for how to deal with this situation or with a partially loaded configuration.
P	Partially Loaded	Some attributes in the configuration are not loaded while others are.
R	Rolled Back	Because all the attributes in a configuration could not be loaded, the original configuration was rolled back on to the device. For more information, see How Safe Load Works with One Device , on Page 5-13 and How Safe Load Works with Multiple Devices , on Page 5-14.



You see an **R** (Rolled Back) Load Status only if the load was performed with Safe Load on and some attributes could not be loaded.

Figure 5-2. Load Button, Load Status, and Load Settings



Clear Load-Status Button



There are times when you might want to clear (reset) the load status of a configuration displayed in the Main and Configurations windows to get a more accurate picture of the configurations that are loaded on your network.

For example, if you have loaded a configuration that overrides a previously loaded configuration, both configurations are listed as fully loaded when, in actuality, the first configuration is no longer loaded to the device. This situation might confuse another user.

For this reason, ECM allows you to reset the load status of configurations that have been fully loaded, partially loaded, or rolled-back.

To reset the load status of a loaded configuration:

1. Highlight the configuration name and then click on the **Clear Load-Status** button or menu option. (The button is grayed out if the configuration has not been loaded.)

ECM prompts you for confirmation.

2. Click on **Yes** in the confirmation box.

In the Main window, notice that the configuration (if it is no longer loaded) is now in the not-loaded section of the list and has a load status of not loaded (—). If the configuration you selected is currently loaded, it remains as such and the L indicating such remains.



The Clear Load-Status button is only a reset-display feature that updates your display to show the current list of loaded configurations. The Clear Load-Status button does not “unload” configurations from devices.

Load Settings

ECM offers you two load settings:

- “Store Device Configurations Before Load”
- “Rollback on Load Failure (Safe Load)”

Both options make the load process a little safer. You will probably want to use both depending on the type of configuration you are loading.

You can set these two options from any one of the following three locations:

- Preferences dialog box (see [Figure 2-2, Specifying Preferences](#), on Page 2-5)

- Resource file (see [Resource File](#), on Page B-1)
- Load Confirmation dialog box (see [Figure 5-3](#) on Page 5-17)

The following sections explain how the options work.

Store Before Load

The “Store Device Configurations Before Load” option captures the device configuration before loading it and then saves it if the load fails.

This option compares the backed up configuration with the one that you subsequently loaded to the device. If the backed up configuration differs from the subsequently loaded one, ECM saves the backed up configuration. This ensures that you always have the original configuration to work with if the load fails. If the load succeeds, the backed up configuration and the one on the device are the same. In this case, ECM does not save the backed up one so that you do not unnecessarily have two copies of the same configuration.

When you perform a load with the “Store Device Configuration Before Load” option on and the load fails, ECM saves the original device configuration before the load, giving it the same name as the configuration you were trying to load but with an increment in the version number.

For example, if you tried to load (but did not totally succeed) a configuration called **First_shift version 1** to a device, you will see the following configurations listed in the Main and Configurations windows:

First_shift version 1
First_shift version 2

First_shift version 1 is the configuration that you were trying to load to the device and is now partially loaded to the device. **First_shift version 2** is the device configuration that ECM stored because the “Store Device Configuration Before Load” option was on. Version 2 is the complete original configuration.

Safe Load

The ECM Safe Load option provides you with a way to control the load process.

When the Safe Load option is on, ECM captures the configuration of the device and then begins loading one attribute at a time. If ECM cannot load an attribute, it stops the load process and attempts to roll back the original configuration to the device. If it cannot roll back the configuration, ECM notifies you so you can manually restore the configuration.

When Safe Load is off, on the other hand, ECM continues loading attributes even if some or all of the attributes cannot be loaded until it has tried loading them all.

Although Safe Load cannot make the load process *fail-safe*, it does make the process safer. At most, with Safe Load on, you may have to manually restore the configuration of one device if the rollback fails. However, with Safe Load off, you take the risk of having to restore the configurations of dozens of devices if the load fails.

Safe Load Default Setting

The Safe Load default setting (on or off) is set at installation.

However, during any ECM session, you can still turn Safe Load on or off by clicking on the Safe Load option. This selection applies to loads performed during the current session and to loads scheduled with the Scheduler during the current session.

When you exit ECM and then open the application again, the Safe Load option defaults to the value specified in the ECM Resource file, **Ecmm**. If you want to change this default, you can edit the ECM resource file. See [Appendix B](#).

How Safe Load Works with One Device

When you load a configuration to one device, Safe Load works in this way:

1. Before loading a configuration, ECM captures the device's configuration.
2. The next step depends on whether the capture is successful or not successful:
 - If the initial capture is not successful, ECM displays a “*Capture for Safe Load failed*” error message and stops the load process. (The configuration's Load status is not modified.)
 - If the initial capture is successful, ECM begins the load process, loading each attribute one at a time.
3. If all the attributes load successfully, then the configuration is successfully loaded and the procedure ends. However, if one attribute fails to load, ECM stops the load.
4. Then ECM performs a second capture so that it can compare the initial configuration to the current configuration.
5. ECM attempts to roll back (restore) the attribute values that were changed.
6. The next step depends on whether the rollback is successful or not:

- If the rollback is successful, ECM displays a Load Results window, which shows you the results of the safe load. In this case, the result says Rolled Back.

From the Load Results window, you can open the Load Detail window, which shows you the Load status of each attribute. The attribute that caused the rollback might have a status of “*Can't write attribute value*” or “*No such attribute*,” indicating the error condition that triggered the rollback.

- If the rollback fails, ECM notifies you immediately with a message box. After you click on OK, ECM displays a Rollback Load Failure Detail window, which shows you the values—before the load and after the rollback—of the attributes it tried to change. When you close this window, you are returned to the Load Results window where you see that the device has a load result of Rollback Failed.

From the Load Results window, you can now open two windows—the Load Detail window and the Rollback Load Failure Detail window, which shows you the attributes you have to manually restore.

How Safe Load Works with Multiple Devices

Safe Load also makes the load process safer when you are loading a configuration to multiple devices. Safe Load continues the load process as long as the loads and rollbacks are successful. However, if a rollback fails, ECM does not attempt to load any other devices and notifies you about the rollback failure. In this way, Safe Load makes sure that you never have to manually restore the configuration of more than one device.

Let us assume you are loading a configuration to four devices on the network. Safe Load works this way:

1. Before loading the configuration to Device 1, ECM captures that device's configuration and saves it in case there is a load failure. Then ECM successfully loads the new configuration to Device 1.
2. Then with Device 2, ECM captures the original configuration and starts the load process but cannot load a particular attribute. ECM stops the load and successfully rolls back Device 2's original configuration. Since the rollback is successful, it continues to the next device.
3. With Device 3, ECM starts loading the configuration but cannot load an attribute successfully. ECM stops the load but this time is not able to roll back Device 3's original configuration. Then ECM notifies you with the Rollback Load Failure message box. When you press OK, the Rollback Load Failure window appears so you can see the attributes and values that you must manually correct.
4. Because rollback failed with Device 3, ECM does not attempt to load Device 4. Instead, ECM displays a Load Results window, which shows you

what happened. Device 1 has a load result of Successful. Device 2 has a load result of Rolled Back. Device 3 has a load result of Rollback Failed. Device 4 has a load result of Not Loaded.

5. If you open the Load Detail windows for the different devices, you can see the load status of each attribute. In the case of Device 3, you can open an additional Rollback Load Failure Detail window that displays the attributes that you must manually restore.



If ECM fails to capture the configuration of a device, it displays the error message “Capture for Safe Load failed” and stops the load process. In the Load Detail window for this device, notice that the Load status for every attribute is “Load not attempted.”

Loading Device Specific Configurations

Procedure Summary

To load one device specific configuration to one device or many device specific configurations to many devices, on a one to one basis in one procedure, do the following:

1. Go to the ECM Main window for device specific configurations.
2. Select the configuration(s) you want to load. No need to select the device.

All device specific configurations for all devices of the same type in the selected landscape are displayed.

3. Click on the **Load** button.
4. In the message box, check/specify settings and click on **Yes**.

If you select Yes, ECM loads the configuration to the specified device(s) and displays a Load Results window, showing the load results for each device:

- If the Safe Load option is turned off, the possible load results are: “Partially Loaded,” “Fully Loaded,” or “Not Loaded.”
 - If the Safe Load option is on, the possible load results are: “Fully Loaded,” “Rolled Back,” “Rollback Failed,” or “Not Loaded.”
5. In the Load Results window, check each device to see the load results.
 6. If a configuration did not fully load, check the load details. To do this, in the Load Results window, do one of the following:

- Press the **Load Detail** button or click on the Load Detail option under the Options menu.
- Or double click on a device name.
- Or select a device and press Return.

A Load Detail window is displayed.

7. Click on the **View All** or the **View Unsuccessful** button to see all the attributes or just the ones that were not successfully loaded. (You can toggle between these windows.)
8. Print results for your records and or your analysis if there is a load failure.



If you want to load the same device specific configuration to more than one device or to a device other than that for which it was made, you must change it from device specific to shared. See [How to Change a Device Specific Configuration to a Shared One](#), on Page 5-21, for details on doing this.

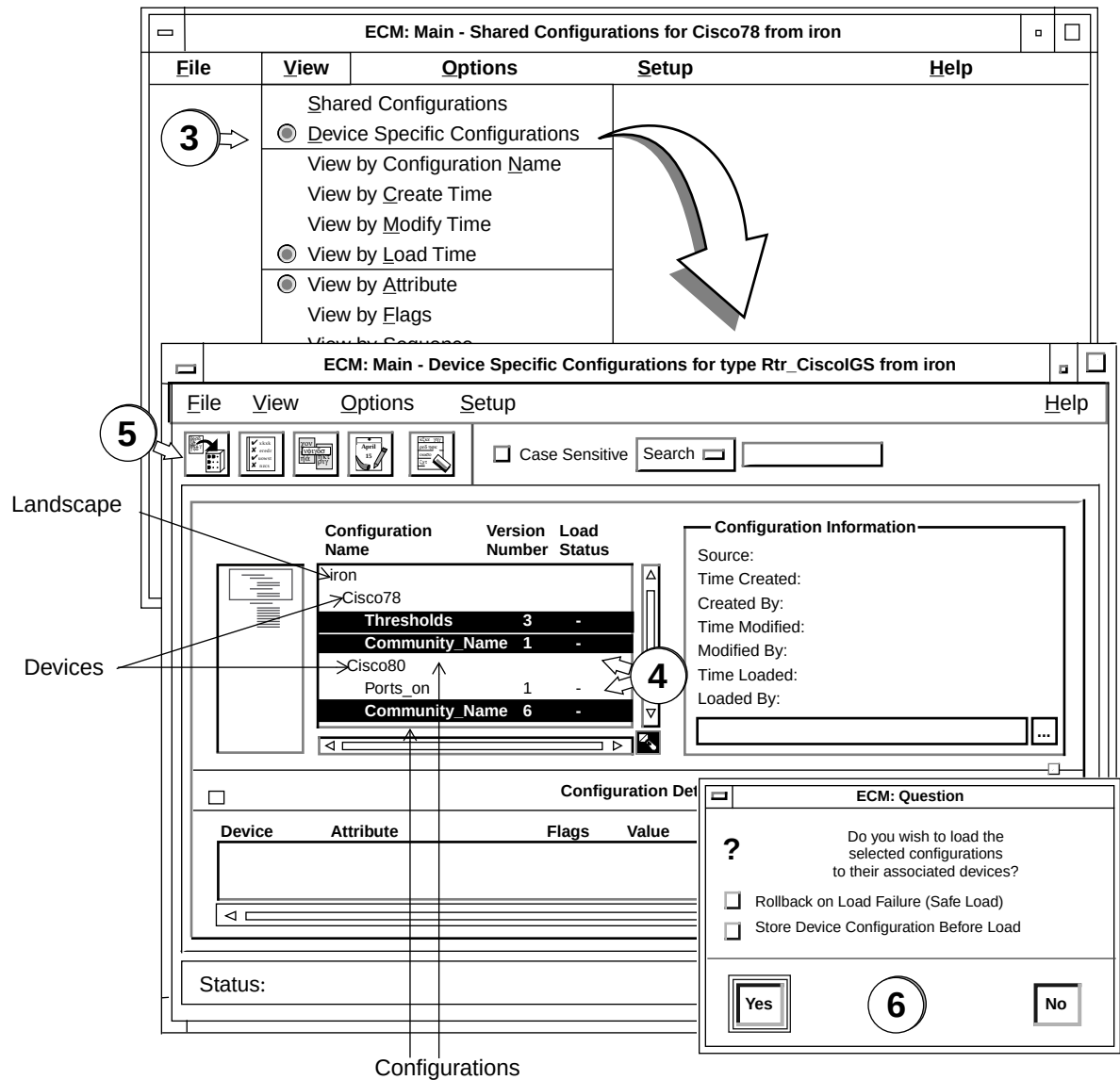
Procedure Details

1. Select a device.

In the SpectroGRAPH before you open ECM, select a device or a component of the device that you want to configure. If you want to configure more than one device or more than one component in the selected landscape, you can select other similar devices or components in the landscape after you open ECM.

2. Open the ECM Main window. By default, this window opens in the shared configurations window (unless you change this default in the resource file. See [Appendix C](#).
3. From the View menu, select **device specific configurations**.

ECM displays in a three-level hierarchy, the selected landscape(s), the selected device(s) in the landscape(s), and the configuration(s) that is on the selected device (unless you have not yet created a configuration for that device). If it exists, the configuration of the preselected device is highlighted. In [Figure 5-3](#) on Page 5-17, three configurations are selected. For that reason, configuration information and details are left blank. If one configuration is chosen, that information is visible.

Figure 5-3. Loading Device Specific Configurations

All devices of the same type in the selected landscape are listed with each of their device specific configurations.

Each device name is nested under the landscape it resides in and each configuration is nested under the device it configures (shown as a 3-level hierarchy). This enables you to view all the configurations of all the devices of the same type in the selected landscape.

The screen illustration (Figure 5-3) shows a many-to-many selection in the Main window for Device Specific Configurations. The configurations

Thresholds and *Community_Name* are selected to be loaded to *Cisco78* and the configuration *CommunityName* is selected to be loaded to *Cisco80*.

4. Select one or more device specific configurations for each device:
 - If you want one configuration, select that configuration. It will be loaded to the device listed above it. The pre-selected device's configuration should already be selected, but you can deselect that one if you want to load a different one in the selected landscape.
 - If you want to load more than one configuration, select those configurations. They will be loaded, on a one to one basis, to each device listed above each configuration:
 - To select all the configurations, either click on the **Select All** button or click on the first configuration, hold down the **Shift** key, and then click on the last configuration.
 - To select a series of specific configurations, click on the first configuration, hold down the **Control** key and then click on the other configurations you want.

When you select more than one configuration at the same time, the Configuration Information and Detail sections of the Main window become blank.



5. Click on the **Load** button (or select the Load menu option).

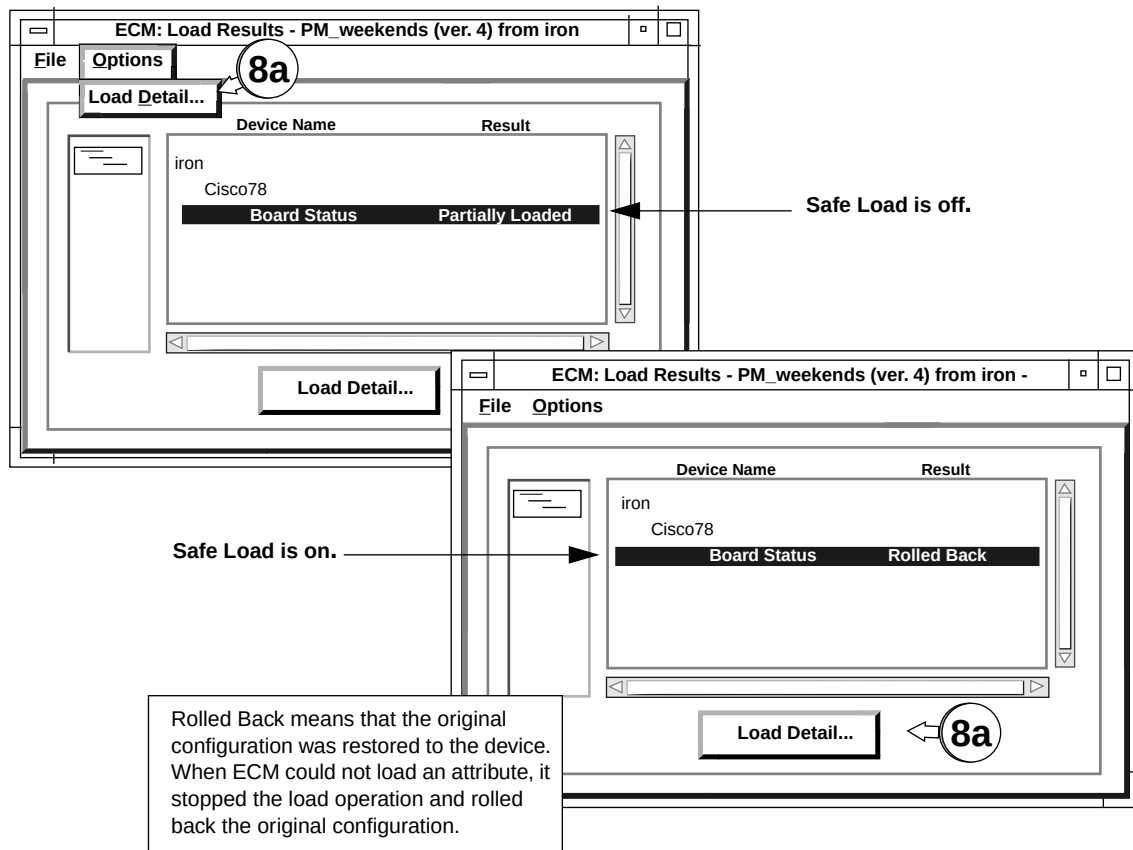
When you click on **Load**, ECM displays a question box asking you to confirm the load and to check the load settings.

6. Check/specify the load settings and click **Yes**.

In the question box, if desired, select “Rollback on Load Failure (Safe Load)” or “Store Device Configuration Before Load” or both. Then, click on the **Yes** button to start the load operation. Once you confirm the load, ECM loads the configuration to the selected device(s) and then displays a Load Results window similar to those in [Figure 5-4](#) on Page 5-19.

7. View results summary.

The Load Results window displays a single line summary for each device loaded, listing “Fully Loaded,” “Partially Loaded,” “Rolled Back,” or “Not Loaded,” depending on the situation. The following figure illustrates the Load Results window, first with the Safe Load option selected for **Off** and then with it **On**.

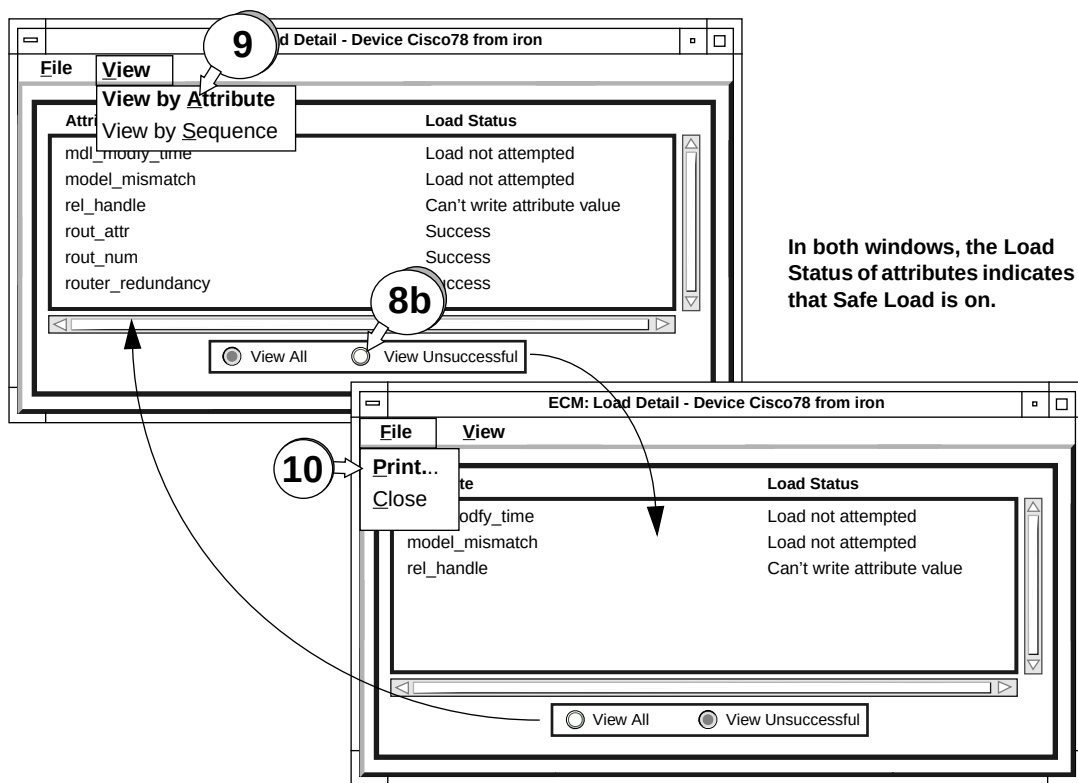
Figure 5-4. Load Results Window: Two Versions

8. Observe results details.

- a. If you want to see the load result details, after you observe the results summary, double click on the selected device in the Load Results window, or click on the **Load Detail** button/option, or press Return.

When you click on **Load Detail**, a Load Detail window appears. The Attribute field in this window contains the attributes and, if applicable, their instance IDs. The Load Status field shows the load status of each attribute. See [Figure 5-5](#), following.

- b. In the Load Detail window ([Figure 5-5](#)) click on the **View All** button to see all the attributes (uppermost representation) or on the **View Unsuccessful** button to see just the ones that were not successfully loaded (lowermost representation), if there were such.

Figure 5-5. Load Detail Window: Two Versions

- **View All** (the uppermost window in the preceding figure) displays all the attributes. The status field may display the following: “Success,” “Failure,” “Can’t write attribute value,” or other error codes. If Safe Load is **On**, you may also see: “Load not attempted.”
- **View Unsuccessful** (the lowermost window in the preceding figure) shows only those attributes that were not loaded. The status field may display the following: “Failure,” “Can’t write attribute value,” or other error codes. If Safe Load is **On**, you may also see: “Load not attempted.”

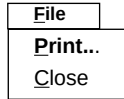


Figure 5-5 shows that Safe Load is **On**, as shown by the “Load not attempted” messages. This means the configuration was rolled back. The detail screen shows you how far the load got before it failed and why it failed.

View
View by Attribute
View by Sequence

- The default arrangement of the Load Detail presentation is by sequence of attribute loaded. To arrange the Load Detail presentation by order of attribute, pull down the View menu and select the **View by Attribute**

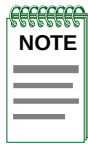
option. This arrangement lists the entries by alphabetical order of attribute for each device. If you wish to change from the alphabetic arrangement back to the sequence in which attributes are loaded, select the **View by Sequence** option from that same pull-down menu.



10. If desired, you can print load results for your records. You might especially want to do this if some attributes in the configuration could not be loaded.

Pull down the File menu of the Load Results window and select the **Print** option to obtain a hardcopy record the load results — with either the **View by Attribute** arrangement or the **View by Sequence** arrangement, as selected from the View menu.

How to Change a Device Specific Configuration to a Shared One

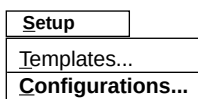


You can load a device specific configuration to many devices only if you change it to a shared configuration.

Before changing a device specific configuration to a shared one, make sure you remove any device specific information first (for example, an IP address).

The next two sections describe how to change a device specific configuration to a shared one and then to load it to more than one device.

Changing the Configuration



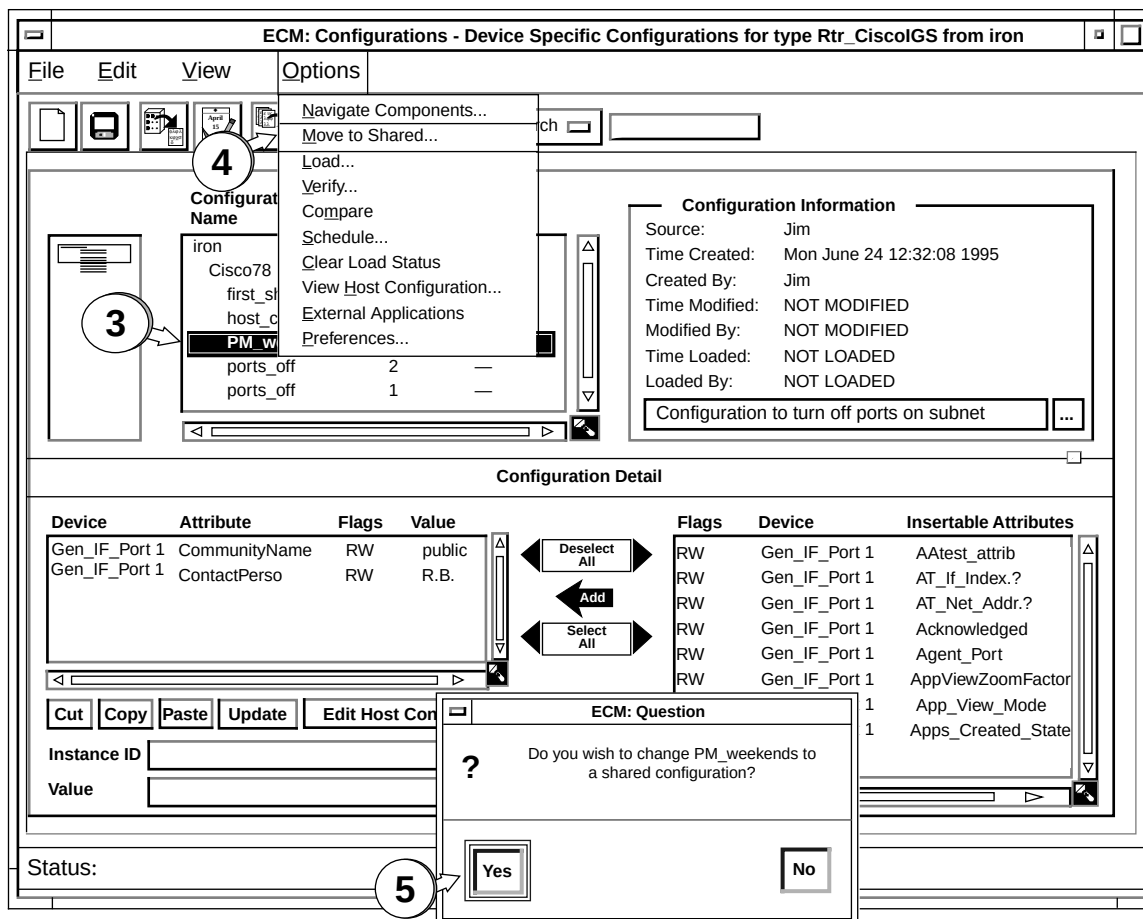
1. At the ECM Main window, select **Configurations** from the Setup menu option.
2. At the ECM Configurations window, select **Device Specific Configurations** from the View menu.
3. Select the device specific configuration that you want.
4. If you want to edit the configuration, you can. You might want to do that if you have device specific information in the configuration.

See [Editing a Configuration](#), on Page 4-37, for directions on editing configurations.

5. From the Options menu, select **Move to Shared** and click **Yes** in the confirmation prompt box. See [Figure 5-6](#).
6. Select **File, Close** to close the Device Specific Configurations window.

The configuration is converted and a message box informs you of the conversion. To load the configuration, use the procedure for loading shared configurations.

Figure 5-6. Changing a Device Specific Configuration to Shared



Loading the Converted Configuration

1. From the ECM Main window for shared configurations, select the configuration you just made shared.
2. Click on the **Choose** button (see Figure 5-7), select the devices you want to configure, and click on **OK**. This displays the ECM Main window with the configuration and devices that you selected.
3. Click on the **Load** button, check/specify the load settings in the message box, and click **Yes**.
4. View/Print the results.



If you have any questions regarding the load procedure, check the more detailed version of the following procedure, [Loading Shared Configurations](#).

Loading Shared Configurations

You can load a shared configuration to one or to multiple devices of the same type. The following is the procedure summary. If you have questions, check the more detailed procedure following the summary.

Procedure Summary

To load a shared configuration to one or more devices of the same type:

1. Open the ECM Main window, making sure that it says “*Shared Configurations*” in the title bar.
2. In the ECM Main window, select the configuration.
3. Select the device or devices that you want:
 - a. In the ECM Main window for shared configurations, if the preselected device is not the one you want, click on the **Choose** button. This displays the Select Devices dialog box.
 - b. This step depends on whether your network is small or large:
 - If you have a small network, in the Select Devices dialog box, select the device or devices you want and click on the **OK** button.
 - If you have a large network, click on the **Filter** button. This displays the Filters dialog box, giving you two different ways of selecting multiple devices.

Select either the **Topology** or the **IP Address** notebook tab:

- If you choose **Topology**, in the Topology notebook window:
 - a. Select the area(s) to filter on.
 - b. Click on **OK** (Or **Apply** and then **Cancel**). This returns you to the ECM Main window.
- If you choose **IP Address**, in the IP Address notebook window:
 - a. Type the desired IP range in the **From** and **To** boxes.
 - b. Click on **Add** to insert the entry in the IP Range field in the large selected filter address box. ECM prompts you if you enter invalid IP ranges.

- c. When you have specified all the IP ranges, click on **OK**. (or **Apply** and then **Cancel**.) This returns you to the ECM Main window for shared configurations.

When you return to the ECM Main window, you will notice that the devices (or range of devices) you entered are listed in the device selection section of that window.



4. Click on the **Load** button or menu option.

When you click on Load, ECM displays a Load Confirmation Message box.

5. If you want to proceed with the load, select the desired “Safe Load” and “Store Device Configuration Before Load” settings in the load confirmation Question box.
6. Click **Yes** to load the configuration.

If you select Yes, ECM loads the configuration to the specified device(s) and displays a Load Results window. This window shows the load results for each device:

- If the Safe Load option is turned off, the possible load results are: “Partially Loaded,” “Fully Loaded,” or “Not Loaded.”
 - If the Safe Load option is on, the possible load results are: “Fully Loaded,” “Rolled Back,” “Rollback Failed,” or “Not Loaded.”
7. Check each device to see the status of its attributes. To do this, in the Load Results window, do one of the following:
 - Press the **Load Detail** button or click on the Load Detail option under the Options menu.
 - Or double click on a device name.
 - Or select a device and press **Return**.

A Load Detail window is displayed.

8. Click on the **View All** or the **View Unsuccessful** button to see all the attributes or just the ones that were not successfully loaded. (You can toggle between these windows.)
9. Print results for your records, if desired.

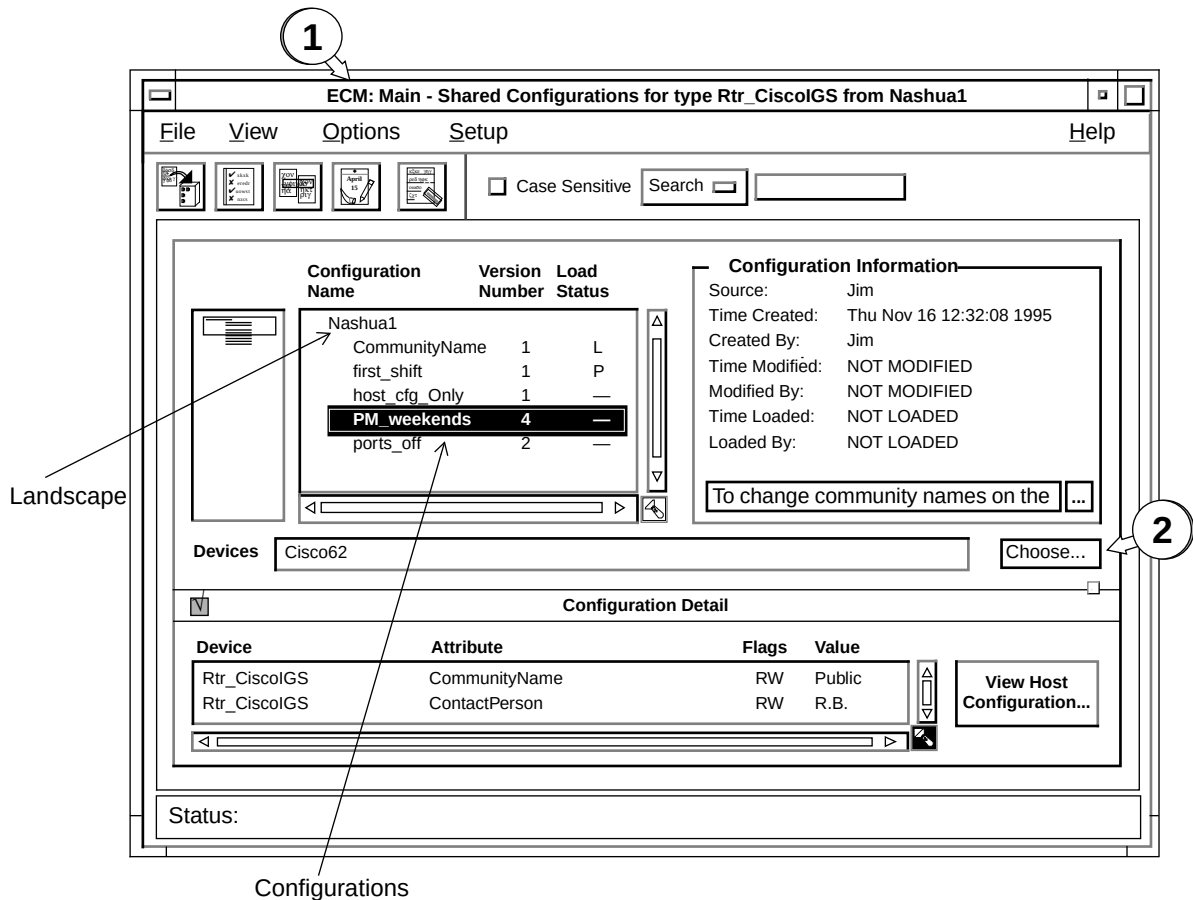
Procedure Details

To load a shared configuration to devices of the same type:

1. Open the ECM Main window, making sure that it says “*Shared Configurations*” in the title bar.

If device specific configurations are selected, from the View menu, select **shared configurations**. This window (see Figure 5-7) shows a 2-level hierarchy of configurations under landscapes. The selected device(s) are displayed separately in the Devices portion of the screen display.

Figure 5-7. ECM Main Window for Shared Configurations



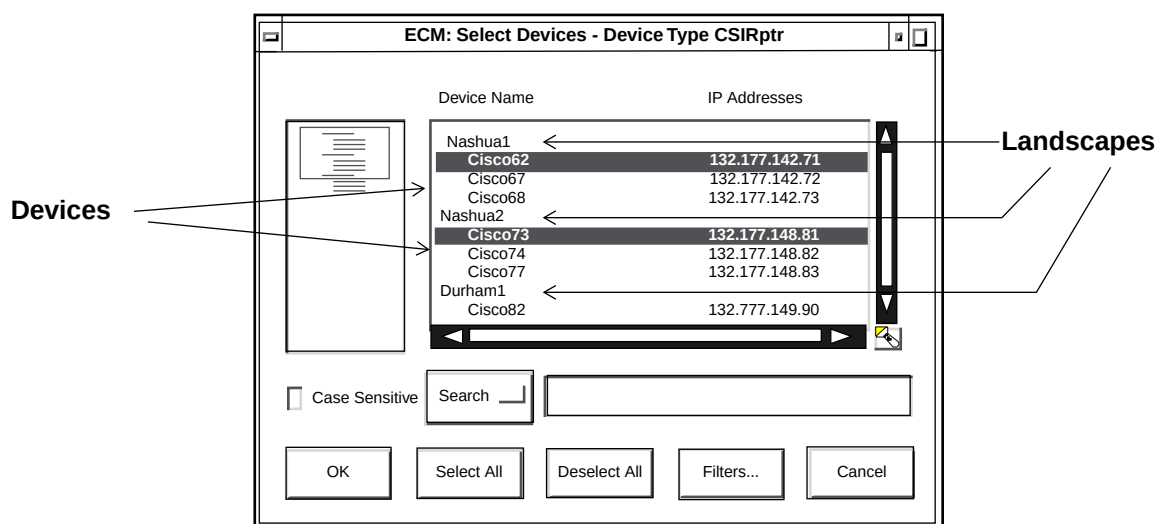
You should be aware of the following in the Shared Configurations window:

- The preselected device is the device you invoked ECM from in SPECTRUM or the component of the device you selected through the ECM Navigate Components option. In the above illustration, Network A is the preselected device.
- The load status of the shared configurations refers only to the preselected device. To know the shared-configurations' load status of another device, either check the SPECTRUM event log, or exit ECM, select that other device in SPECTRUM, and invoke ECM from that device.

- To check the load status of a shared configuration, select that configuration and the device you want to check and do a verification of the configuration. If the configuration is loaded on the device, the verification of the configuration in ECM with that on the device will match.
2. If the preselected device is not what you want, click on the **Choose** button. This displays the Select Devices window. See [Figure 5-8](#).

In the Select Devices window, select the device or devices you want and click on the **OK** button.

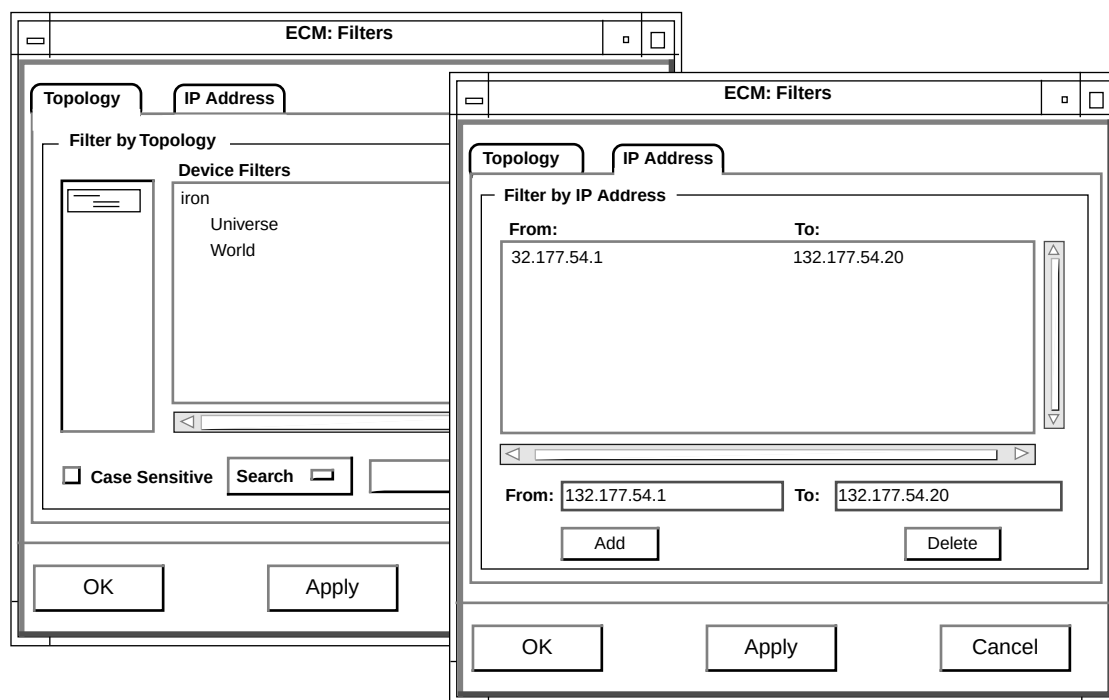
Figure 5-8. Select Devices Window



The Select Devices window contains a two-level list of devices nested under each landscape. This window shows all the devices to which you can load shared configurations in the selected landscapes.

The list identifies the devices by both their model names and their IP addresses. If a device has no model name, ECM identifies the device with its model handle. The top-level names in the list are the landscapes containing the devices.

3. If you have only a few devices to select from, skip to [Step 6](#). If you have a large network, click on the **Filter** button. This displays the Filters dialog box, giving you two different ways of selecting multiple devices. See [Figure 5-9](#).

Figure 5-9. Two Filter Options

4. Select either the **Topology** (physical location name) or the **IP Address** (numbered location name) notebook tab, depending on how you want to select devices). You select a notebook tab by clicking on its name.
5. Select the devices you want according to one of the filter options:
 - If you choose Topology, in the Topology notebook window:
 - a. Select the area(s) to filter on.
 - b. Click on **OK** (Or **Apply** and then **Cancel**). This returns you to the ECM Main window.
 - If you choose IP Address, in the IP Address notebook window:
 - a. Type the desired **IP range** in the *From* and *To* boxes.
 - b. Click on **Add** to insert the entry in the IP Range field in the large selected filter address box. ECM prompts you if you enter invalid IP ranges.
 - c. When you have specified all the IP ranges, click on **OK**. (or **Apply** and then **Cancel**.) This returns you to the ECM Main window.

When you return to the ECM MAIN window, you will notice that the devices (or range of devices) you entered are listed in the device selection section of that window.



You cannot use the Filter button when you work with ports, boards, interfaces, and applications—the components you select in the ECM Components dialog box. Notice that the Filter button is grayed-out in the window for these devices.

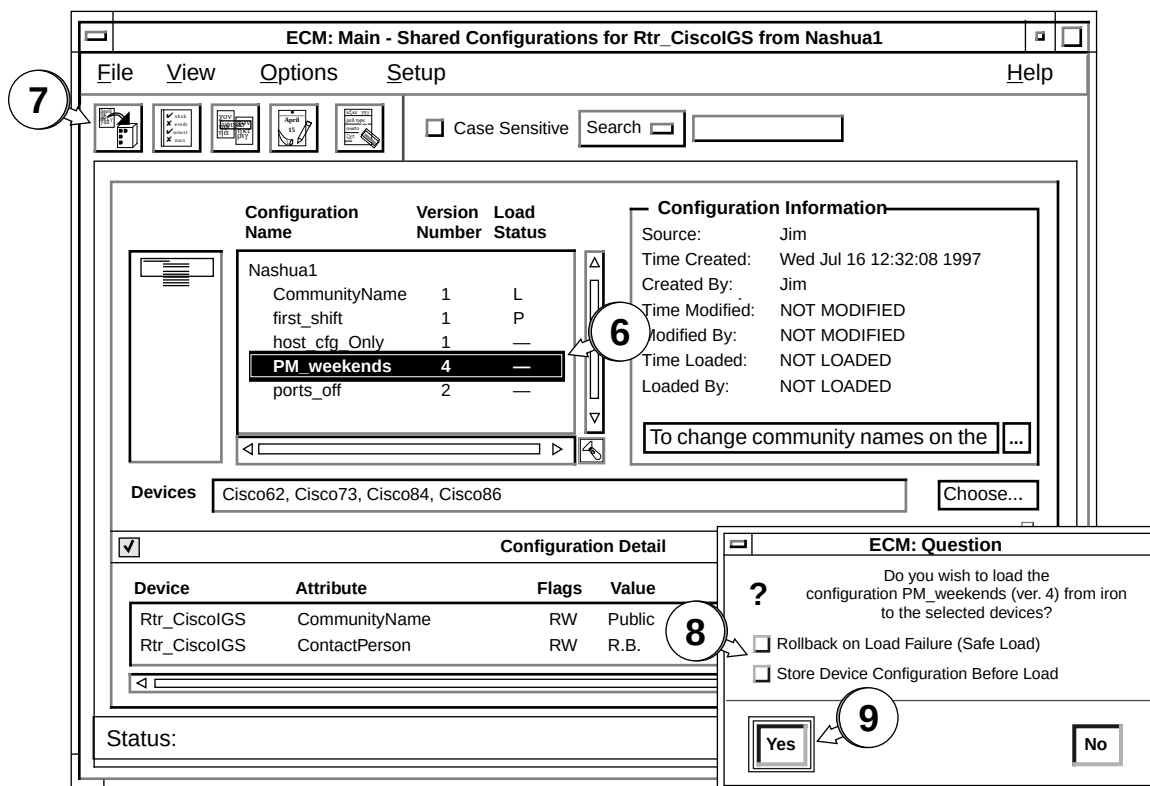
6. In the ECM Main window, select the configuration. (You can switch Steps 5 and 6 if you prefer. Their order does not matter.)



7. Click on the **Load** button or menu option.

When you click on Load, ECM displays a load question box asking you to confirm the load. See [Figure 5-10](#).

Figure 5-10. Loading a Shared Configuration

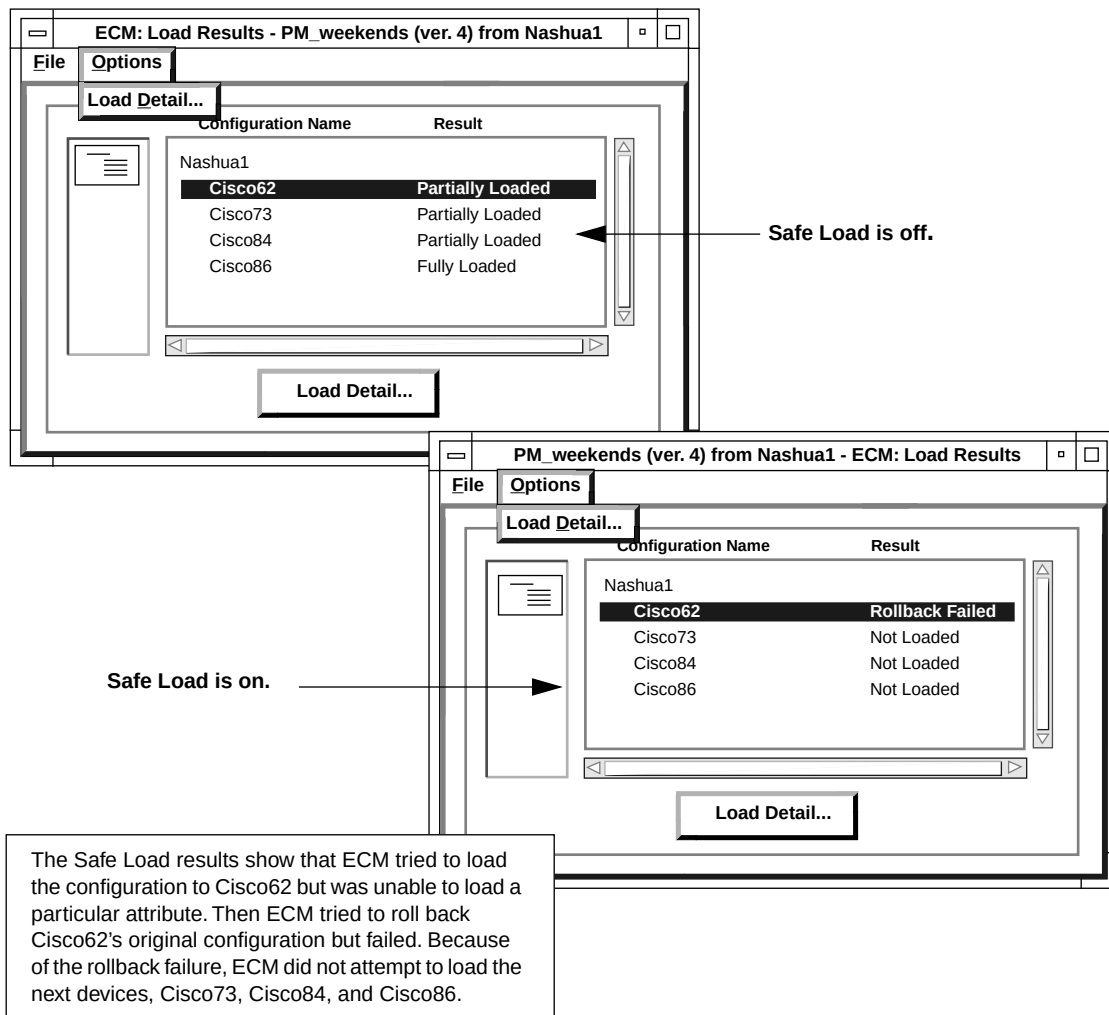


8. If you want to proceed with the load, select the desired “Safe Load” and “Store Device Configuration Before Load” settings in the load confirmation box (labeled ECM:Question).
9. Click **Yes** to load the configuration.

If you select Yes, ECM loads the configuration to the specified device(s) and displays a Load Results window. See [Figure 5-11](#). This window shows the load results for each device:

- If the Safe Load option is turned off, the possible load results are: “Partially Loaded,” “Fully Loaded,” or “Not Loaded.”
- If the Safe Load option is on, the possible load results are: “Fully Loaded,” “Rolled Back,” “Rollback Failed,” or “Not Loaded.”

Figure 5-11. Load Results Window: Two Windows



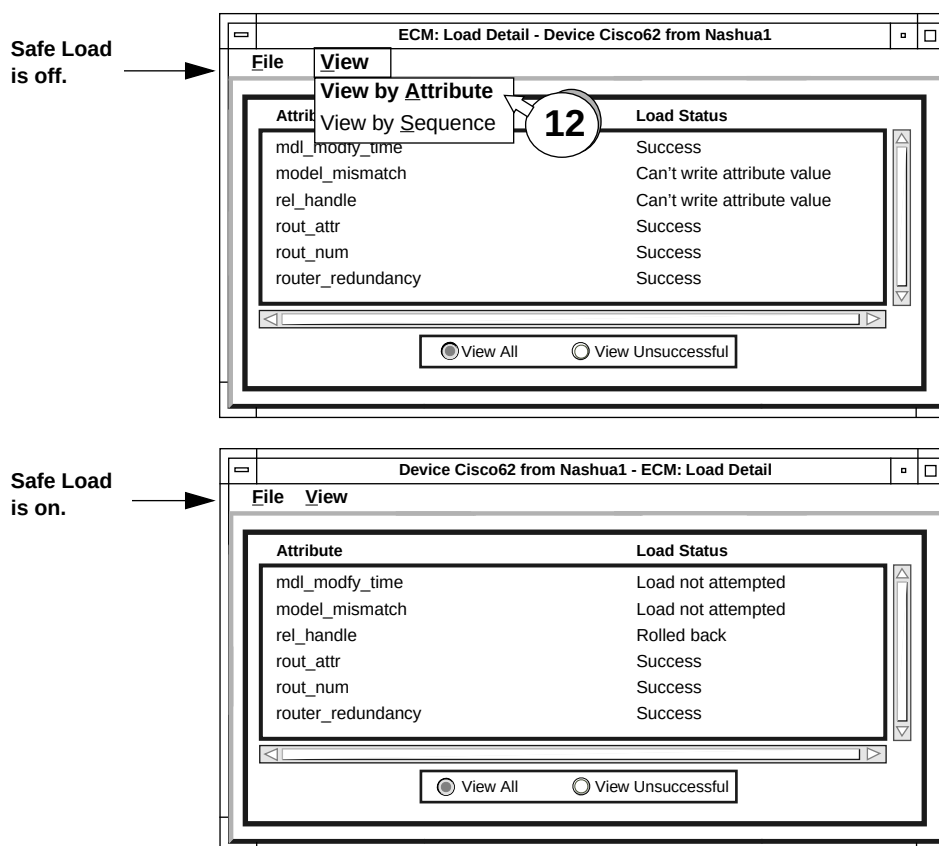
10. Check each device to see the status of its attributes. To do this, in the Load Results window, do one of the following:

- Press the **Load Detail** button or click on the **Load Detail** option under the Options menu.
- Or double click on a device name.
- Or select a device and press **Return**.

A Load Detail window, similar to those in [Figure 5-12](#), is displayed.

11. Click on the **View All** button to see all the attributes or on the **View Unsuccessful** button to see just the ones that were not successfully loaded. (You can toggle between these windows at will by pressing the alternative button.)

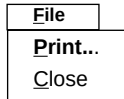
Figure 5-12. Two Load Detail Windows: *View All* Selected



View
View by Attribute
View by Sequence

12. The default arrangement of the Load Detail presentation is by sequence of attribute loaded. To arrange the Load Detail presentation by order of attribute, pull down the View menu and select the **View by Attribute** option. This arrangement lists the entries by alphabetical order of

attribute for each device, listing first in order of upper-case letters and then in order of lower-case letters. If you wish to change from the alphabetic arrangement to the sequence in which attributes are loaded, select the **View by Sequence** option from that same pull-down menu.



13. If desired, you can print load results for your records. You might especially want to do this if some attributes in the configuration could not be loaded.

Pull down the File menu of the Load Results window and select the Print option to obtain a hardcopy record the load results — with either the **View by Attribute** arrangement or the **View by Sequence** arrangement, as selected from the View menu.

Logging, Finding, and Printing Load Results

Logging Load Results

ECM logs events to the SPECTRUM landscape that contains the particular configuration, template, or device. If the landscape is not accessible, ECM logs the event to the landscape to which ECM is currently connected.

The SPECTRUM Event Log saves information about:

- Time of a load.
- Who loaded the configuration.
- Load result.

The event log does not contain the load result details.

Finding Load Results

You can find:

- Historical record of loads in the SPECTRUM Event Log.
- Latest status of loads in the ECM Main window (configuration device specific window and shared window).
- Load details in the Load Detail and Rollback Load Failure Detail windows.



ECM does not save the detailed load result information about the status of each attribute. Because of this, you may want to print Load, Load Detail, and Rollback Failure results for you records after you load a configuration to one or more network devices.

Printing Load Results

You can print Load results from the following windows:

- Load Results.
- Load Detail (for listing of attributes and for Cisco host configuration).
- Rollback Load Failure Detail.

To print load results or load details:

1. Click on the **Print** option in the File menu of the appropriate window.

The Printer dialog box appears.

2. Specify the name of your printer and the printer type—either ASCII or PostScript—and confirm your selection by clicking on **OK**. (The order of these steps differs slightly depending on the printer.)

ECM prints the results. [Figure 5-13](#) and [Figure 5-14](#) show sample printouts.

Figure 5-13. Sample Printouts of Load Results and Load Details

11:30 AM Wed April 2 1997 Enterprise Configuration Manager Page 1	12:24 AM Wed April 2 1997 Enterprise Configuration Manager Page 1																																																																																
Load Results for Configuration all_attr_config (ver. 4) from iron <table> <tr> <th>Device Name</th><th>Result</th></tr> <tr> <td>Emme-device1</td><td>Partially Loaded</td></tr> <tr> <td>Emme-device2</td><td>Partially Loaded</td></tr> <tr> <td>Emme-device3</td><td>Partially Loaded</td></tr> </table>	Device Name	Result	Emme-device1	Partially Loaded	Emme-device2	Partially Loaded	Emme-device3	Partially Loaded	Load Details of Configuration all_attr_config (ver. 4) for Device Emme-device2 from iron <table> <tr> <th>Attribute</th><th>Load Status</th></tr> <tr><td>AAtest_attrib</td><td>Success</td></tr> <tr><td>ADiscDataRelayMH</td><td>Success</td></tr> <tr><td>AT_If_Index.4.1.132.177.141.102</td><td>Failure</td></tr> <tr><td>AT_If_Index.4.1.132.177.141.11</td><td>Failure</td></tr> <tr><td>AT_If_Index.4.1.132.177.143.105</td><td>Failure</td></tr> <tr><td>AT_Net_Addr.4.1.132.177.141.102</td><td>Failure</td></tr> <tr><td>AT_Net_Addr.4.1.132.177.141.115</td><td>Failure</td></tr> <tr><td>AT_Net_Addr.4.1.132.177.143.1</td><td>Failure</td></tr> <tr><td>AT_Net_Addr.4.1.132.177.143.105</td><td>Failure</td></tr> <tr><td>AT_Phys_Addr.2.1.132.177.141.10</td><td>Failure</td></tr> <tr><td>AT_Phys_Addr.2.1.132.177.141.11</td><td>Failure</td></tr> <tr><td>AT_Phys_Addr.2.1.132.177.141.123</td><td>Failure</td></tr> <tr><td>AT_Phys_Addr.2.1.132.177.143.1</td><td>Failure</td></tr> <tr><td>AT_Phys_Addr.2.1.132.177.143.10</td><td>Failure</td></tr> <tr><td>AT_Phys_Addr.2.1.132.177.143.110</td><td>Failure</td></tr> <tr><td>Acknowledged</td><td>Success</td></tr> <tr><td>Activation Status</td><td>Success</td></tr> <tr><td>Agent_Port</td><td>Success</td></tr> <tr><td>Apps_Created_State</td><td>Success</td></tr> <tr><td>Attr_Numbe</td><td>Success</td></tr> <tr><td>AutoPlaceOffsetX</td><td>Can't write attribute value</td></tr> <tr><td>AutoPlaceOffset</td><td>Can't write attribute value</td></tr> <tr><td>AutoPlaceStartx</td><td>Can't write attribute value</td></tr> <tr><td>AutoPlaceStarty</td><td>Can't write attribute value</td></tr> <tr><td>Button_List</td><td>Success</td></tr> <tr><td>Change_Stamp</td><td>Success</td></tr> <tr><td>Child_Count</td><td>Success</td></tr> <tr><td>Collected_By_List</td><td>Success</td></tr> <tr><td>Community_Name</td><td>Success</td></tr> <tr><td>Composite_Condition</td><td>Success</td></tr> <tr><td>Condition</td><td>Success</td></tr> <tr><td>Condition_Value</td><td>Success</td></tr> <tr><td>ConfigurationTimer</td><td>Success</td></tr> <tr><td>Connect_This_Model</td><td>Can't write attribute value</td></tr> <tr><td>ConnectionPrec</td><td>Success</td></tr> </table>	Attribute	Load Status	AAtest_attrib	Success	ADiscDataRelayMH	Success	AT_If_Index.4.1.132.177.141.102	Failure	AT_If_Index.4.1.132.177.141.11	Failure	AT_If_Index.4.1.132.177.143.105	Failure	AT_Net_Addr.4.1.132.177.141.102	Failure	AT_Net_Addr.4.1.132.177.141.115	Failure	AT_Net_Addr.4.1.132.177.143.1	Failure	AT_Net_Addr.4.1.132.177.143.105	Failure	AT_Phys_Addr.2.1.132.177.141.10	Failure	AT_Phys_Addr.2.1.132.177.141.11	Failure	AT_Phys_Addr.2.1.132.177.141.123	Failure	AT_Phys_Addr.2.1.132.177.143.1	Failure	AT_Phys_Addr.2.1.132.177.143.10	Failure	AT_Phys_Addr.2.1.132.177.143.110	Failure	Acknowledged	Success	Activation Status	Success	Agent_Port	Success	Apps_Created_State	Success	Attr_Numbe	Success	AutoPlaceOffsetX	Can't write attribute value	AutoPlaceOffset	Can't write attribute value	AutoPlaceStartx	Can't write attribute value	AutoPlaceStarty	Can't write attribute value	Button_List	Success	Change_Stamp	Success	Child_Count	Success	Collected_By_List	Success	Community_Name	Success	Composite_Condition	Success	Condition	Success	Condition_Value	Success	ConfigurationTimer	Success	Connect_This_Model	Can't write attribute value	ConnectionPrec	Success
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ConfigurationTimer	Success																																																																																
Connect_This_Model	Can't write attribute value																																																																																
ConnectionPrec	Success																																																																																
Load Results	Load Details																																																																																

Figure 5-14. Sample Printouts of Rollback Load Failure Details & Cisco Load Details

09:30 AM Wed April 2 1997	Enterprise Configuration Manager	Page 1
Rollback Load Failure Details for Configuration vacation_config (ver. 4) on Device Cisco_Rtr_2 from iron		
Attribute Name	: Community_Name	
Modified Value	: invalid	
Original Value	: public	
Attribute Name	: SysName	
Modified Value	: rtr1	
Original Value	: rtr	
Attribute Name	: idleCount	
Modified Value	: 1	
Original Value	: 174394	

09:24 AM Wed April 2 1997	Enterprise Configuration Manager	Page 1
Load Details for Configuration cisco_config (ver.4) for Device Cisco-Dev2 from iron		
Attribute	Load Status	
System_Oid_Verify	Can't write attribute value	
Value_When_Orange	Success	
Value_When_Red	Success	
Value_When_Yellow	Success	
Yellow_Threshold	Success	
red_child_cnt	Success	
router_redundancy	Success	
<Host Configuration>	DCM device unreachable	

Rollback Load Failure Details

This printout displays the names of attributes that were not rolled back and their original and modified values.

Cisco Load Details

This printout displays the load status of both attributes and the Cisco host configuration.

What to Do When a Load Fails

ECM Load-Failure Alarms in SPECTRUM

By default, in addition to displaying the load-failure details in the ECM Load Details message window, all ECM Load failures generate an alarm in SpectroGRAPH. SpectroGRAPH indicates a “Load Failure” alarm condition in the following way:

- The device flashes yellow in the Topology View.
- An alarm entry appears in the Alarms window.
- An alarm event appears in the Event Log.

Any load operation that fails to load an attribute is a load failure.

For example, partial loads, rollbacks, and rollback load failures are all considered load failures. On the other hand, if you load multiple devices and ECM does not attempt to load a device after a rollback load failure, the device with a load result of “Load not attempted” does not display an alarm condition.

ECM alarm defaults are set at installation. After installation you can modify the color of the alarm or turn off the alarm mechanism altogether. For these procedures, see the section entitled [Understanding and Modifying ECM Alarms in SPECTRUM](#), on Page 9-9.

Ways to Fix the Problem

The following are ways to find out and fix what went wrong:

- Check the device connection and reconnect it if it is not connected.
- Check to see if the same configuration previously loaded correctly. If so, what might be different in this situation to cause the problem.
- Print the “Load Result Details” and find the attribute that failed. Eliminate that attribute from the configuration and reload the configuration. If it works, create a separate configuration for the failed attribute and then load that. This could work, if the failed attribute required another attribute to be set before it could be loaded.
- Break the configuration into smaller configurations to locate a hard to find problem.
- If you have a Safe-Load capture failure or Safe-Load roll-back failure, check the following subsections in this section.

What Can Cause a Safe-Load Backup Capture to Fail

When you have Safe Load on, ECM captures the device's configuration before beginning the load process. If this initial capture fails, ECM displays the error message "Capture for Safe Load failed" and stops the load.

To find out why the backup capture failed:

1. Convert the configuration to a template—if you do not already have it.
2. Try to capture the configuration with the template.

When ECM cannot capture a configuration with a template, it allows you to view the attributes and their capture status in the Load Detail window.

3. View the Load Detail window.

The error messages in the Capture Status column indicate why the configuration could not be captured. For example, you cannot capture a write-only attribute since it can only be written to, not read.

For more information, see section [Creating a Configuration with a Template](#), on Page 4-27, and section [Comparing Two Configurations](#), on Page 4-50.

What Can Cause a Rollback for Safe Load to Fail

A rollback can fail if ECM for any reason loses contact with the device it is configuring.

For example: in a network, a connection could be broken or a technician at a remote location could accidentally pull a card from the device being configured while the configuration is in process.

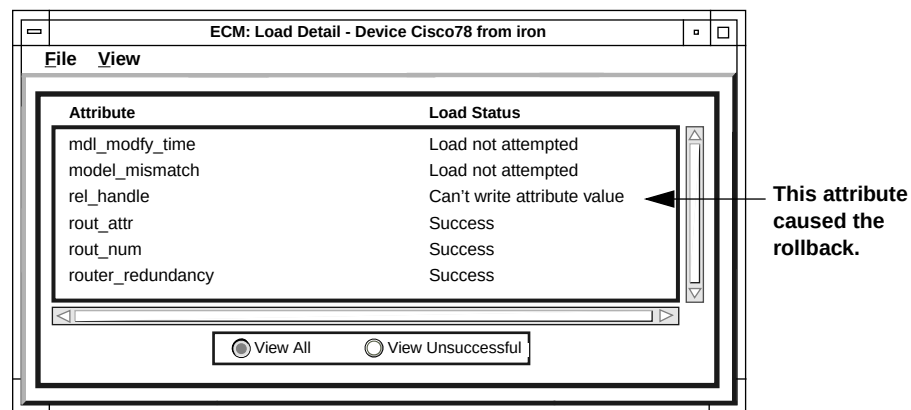
Another example: If in the ECM configuration you change the device's community name, then set an attribute in Spectrum (say, how often Spectrum might poll devices) and then in the ECM configuration return to the device to set more device attributes, you will no longer have permission to contact that device unless you have also modified the device's community name in SPECTRUM to agree with the new one you just created on the device. The SPECTRUM community name for a device must agree with the community name configured in the device.

A third example: if a configuration sets an attribute that changes a device's functionality so that other attributes disappear, when ECM tries find the no longer existing attributes, it will not succeed and the rollback will fail.

Understanding the Events that Precede a Safe-Load Rollback

When a Rollback occurs, check the Load Results Detail window to see the events that preceded the initiation of a rollback. The Load Detail window shows you all the events that occurred before ECM began the procedure to roll back the original configuration to the device, including the specific attribute that triggered the rollback. See [Figure 5-15](#).

Figure 5-15. The Load Detail Window for Rolled Back Load Status



For example, assume that the configuration consists of the six attributes in the Load Detail window in [Figure 5-15](#). The Load Detail window indicates that the following events took place:

- ECM captured the original configuration before beginning the load process.
- ECM began loading the configuration one attribute at a time, beginning at the end of the configuration.
- It successfully loaded the three attributes router_redundancy, rout_num, and rout_attr to the device.
- ECM could not load the attribute rel_handle so it stopped the load operation.
- It did not attempt to load the other attributes.
- Then ECM began the procedure to roll back the configuration.

From this window you do not know if the rollback was successful or not. This window only shows the events that occurred before ECM begins the rollback. You have to check the Load Result window to see whether the rollback is successful or not.

What to Do When Rollback for Safe Load Fails

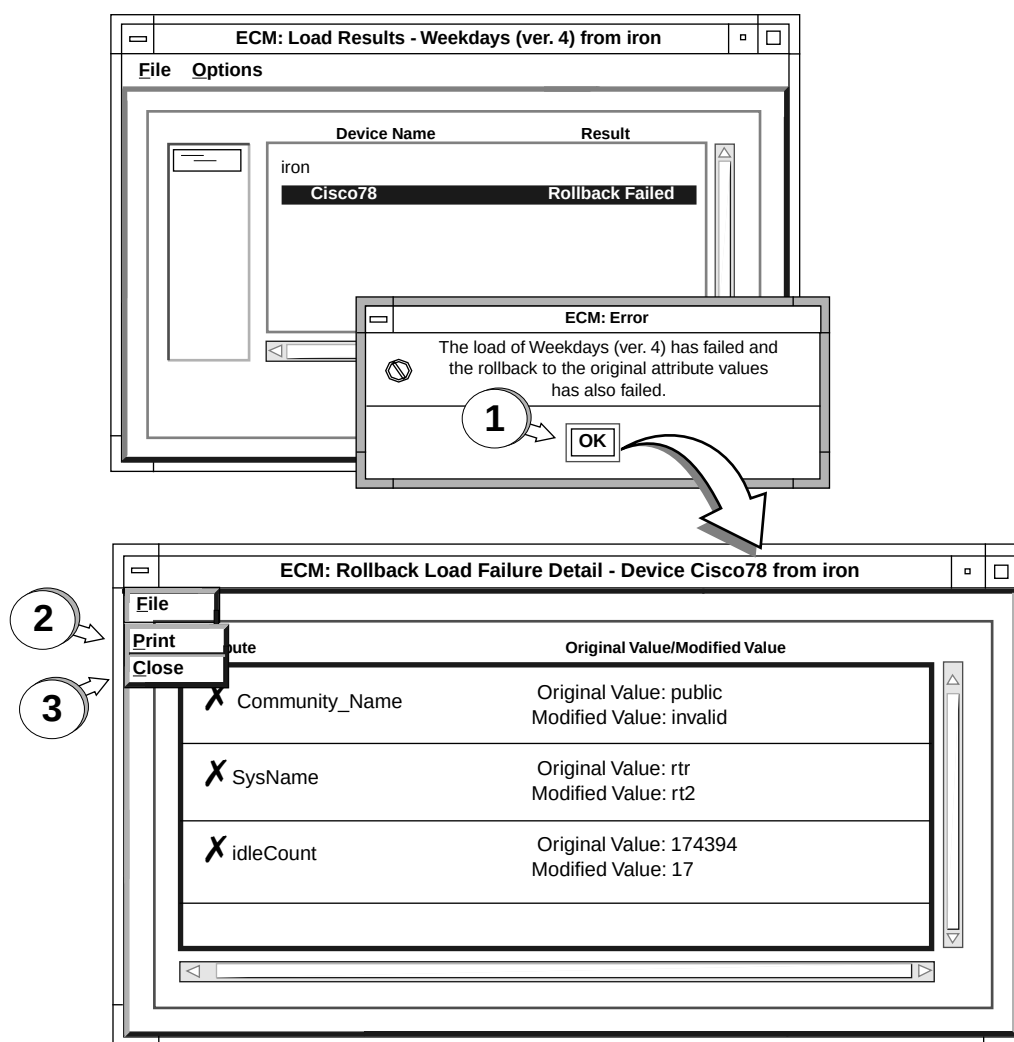
In most cases, ECM will be able to roll back the configuration when it fails to load an attribute to a device. However, in those cases when it cannot, ECM notifies you with a Rollback Failure message box in front of the Load Results window.

When rollback fails, follow these steps:

1. Click **OK** in the Rollback Failure message box.

A Rollback Load Failure Detail window appears. It displays the Original Values and the Modified Values of the Attributes that ECM could not roll back. See [Figure 5-16](#).

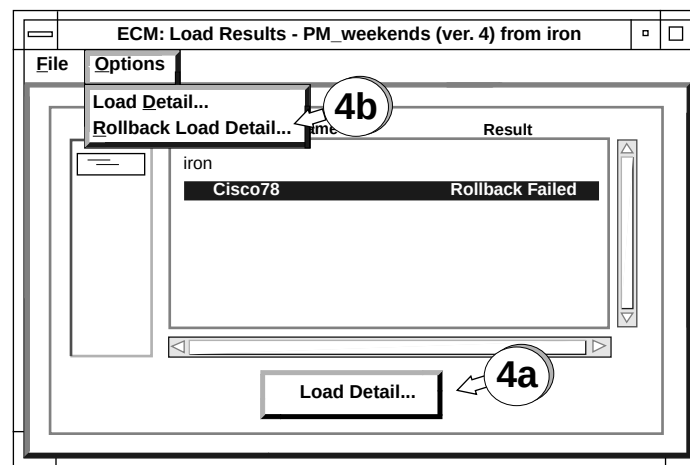
Figure 5-16. The Windows Indicating Rollback Load Failure



2. While you have the window open, select the **Print** option in the File menu to print the Rollback Load Failure Detail so that you can refer to it when you restore the configuration.
3. Select the **Close** option in the File menu to close the Rollback Load Failure Detail window.

When you close the window, you are returned to the Load Results window where you see that the device has a load result of Rollback Failed. Notice that the Options menu in this window has two menu options—Load Detail and Rollback Load Detail.

Figure 5-17. The Load Detail and the Rollback Load Detail Options



4. From the Load Results window, open both Load Detail windows as follows:
 - a. Click on the **Load Detail** button or menu option to open the Load Detail window where you can view *all* the attributes in the configuration.
 - b. Click on the **Rollback Load Detail** menu option to return to the Rollback Load Failure Detail window.
5. After studying the load results and printing out copies for your records, manually restore the attributes that ECM could not roll back. The way you do this depends on the attributes that you have to restore. Each situation will be unique. However, the following are suggestions that you can begin with:
 - In ECM, modify the configuration, if possible, and load it again or create a configuration for each attribute and load the configurations in a different order.
 - Manually, using the embedded local management application, reconfigure the actual device.

Special Load Information for Cisco Routers

Load Results for Cisco Host Configurations

If your Cisco router configuration includes a host configuration, you will see the host configuration load results in the ECM Load Detail window and in the printout. This includes the *name* **<Host Configuration>** in the Attribute field and the *status* (Success, Failure, or other error messages) in the Load Status field. See the sample printout in [Figure 5-14](#) on Page 5-34.

How ECM Loads Cisco Host Configurations

The following scenarios show you how ECM proceeds with a load when the configuration includes both attributes and a host configuration.

Remember: ECM always loads the attributes first and then the Cisco host configuration commands.

With Safe Load OFF:

- ECM loads both the attributes and host configuration commands even if some attributes cannot be loaded to the device.

In the Load Detail window the load status for the host configuration commands can be either Success or Failure.

With Safe Load ON:

- If ECM fails to load one of the attributes in the configuration, it rolls back the attributes and does not attempt to load the host configuration commands.

In the Load Result window, the device will have a load result of “Rolled Back.” In the Load Detail window, the load status for the host configuration will be “Load not attempted.”

- If ECM successfully loads all attributes but fails to load the host configuration commands, ECM does *not* roll back the attributes.

In the Load Result window, the device will have a load result of “Partially Loaded.” This is one case when Safe Load allows a partial load.

In the Load Detail window, the load status for the host configuration will indicate the reason why it could not be loaded.



Chapter 6

Verifying a Configuration

This chapter shows you how to verify the configuration(s) of the selected device(s).

In This Chapter

- [*Verification Procedure*](#)
A summary of the verification procedure.
- [*Verification Process*](#)
What the system does when you verify a configuration.
- [*Verification Options*](#)
A list of verification options.
- [*Verifying Device Specific Configurations*](#)
How to verify a device specific configuration.
- [*Removing Non-Matching Attributes*](#)
How to remove non-matching attributes found when verifying.
- [*Verifying Shared Configurations*](#)
How to verify shared configurations.
- [*Viewing and Modifying Verify-Failure Alarms*](#)
How to view and modify verify-failure alarms.
- [*Printing Verification Results*](#)
How to print verification results.
- [*Verifying the Cisco Host Configuration*](#)
How to verify a Cisco host configuration.
- [*Viewing Hidden Host Configuration Passwords*](#)
How to view hidden host configuration passwords.

Verification Procedure

The ECM verification procedure enables you to compare loaded configurations with expected configurations, the configurations as they are defined in ECM.

Though the verification procedure differs slightly depending on whether the configuration is device specific or shared, the basic steps are the same.

To verify a configuration:

1. Select the configuration you want to verify.

If the configuration is device specific, you can select more than one configuration. If the configuration is shared, you can select only one configuration.

2. Select the device(s) you want.

This step is unnecessary if the configuration is device specific since the device is automatically selected when you select the configuration. This step is also unnecessary with shared configurations if the preselected device or component is what you want.

However, with shared configurations, you can select more than one device at a time.

3. Click on the **Verify** button and click **Yes** to the confirmation prompt.
4. View the results. If you verified more than one device's configuration, the results for each are displayed.
5. If a configuration does not match, view and print the result details for your records and analysis.
6. Close the result windows.

Verification Process

To perform a verification:

1. ECM first captures the actual (the loaded) configuration of the selected device.
2. Then it compares each attribute/value pair in the captured configuration with the expected (the selected) configuration, as it is defined and stored in ECM.
3. Next, ECM displays the results in the Verify Results and the Verify Detail windows.

Verification Options

The verification process tells you whether your selected configuration matches that of the selected device or other devices of the same type. If it doesn't match, it tells you in what way. In addition, you have the following options when you verify a configuration. You can:

- View the results of the verification in two ways: A **View All** button shows you both matching and non-matching attributes, a **View Unsuccessful** button shows you only non-matching attributes.
- Verify the Cisco router host configuration file of either the selected device or other devices of the same type.
- Remove non-matching attributes from the configuration.
- Print verification results for your records.
- Modify or turn off the Verify Failure alarms that appear in SPECTRUM. (See [Understanding and Modifying ECM Alarms in SPECTRUM](#), starting on Page 9-9.)

Verifying Device Specific Configurations

To verify device specific configurations:

1. Open the ECM Main window and select device specific from the View menu.
2. Select the configuration that you want to verify. If you want to select more than one configuration at the same time, you can. To do so, hold down the Control key while selecting each configuration.

When selected, the configuration(s) appears in a black band.

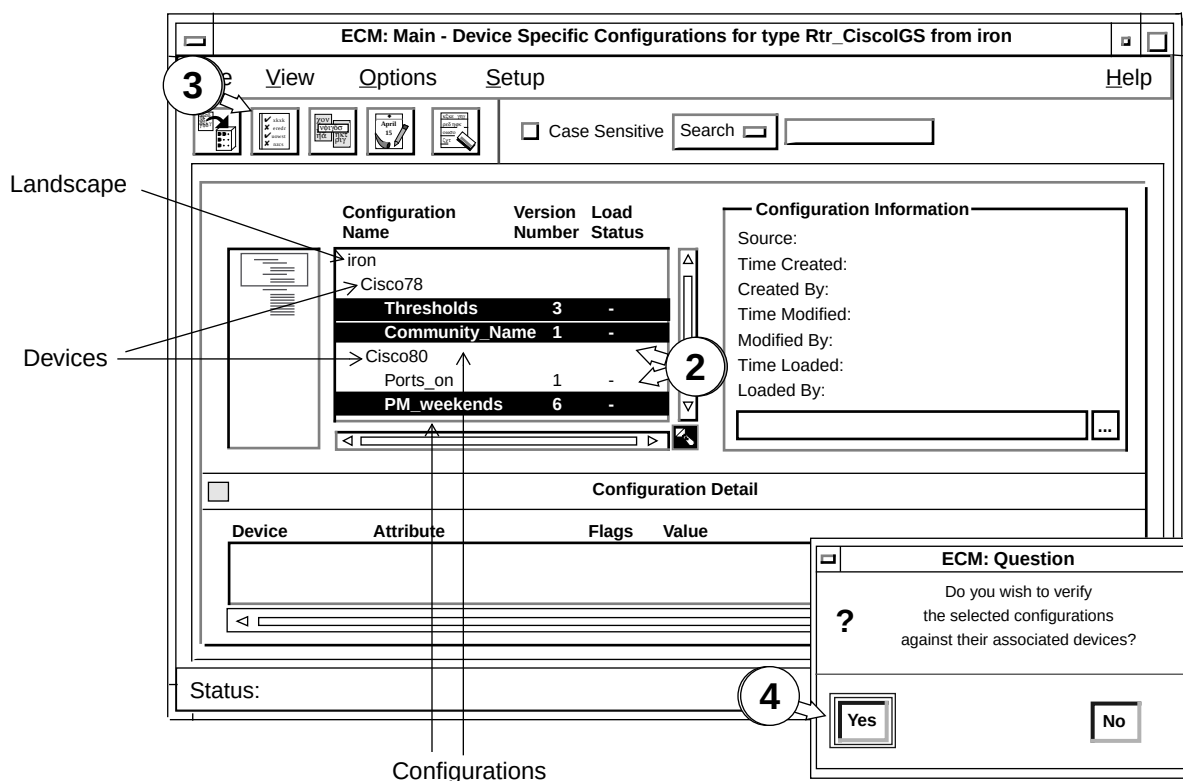


3. Click on either the **Verify** button or menu option.

When you click on Verify, ECM asks you to confirm the verification. See [Figure 6-1](#).

4. If you want to continue, click on **Yes** in the prompt box.

If you don't want to continue, click **No**.

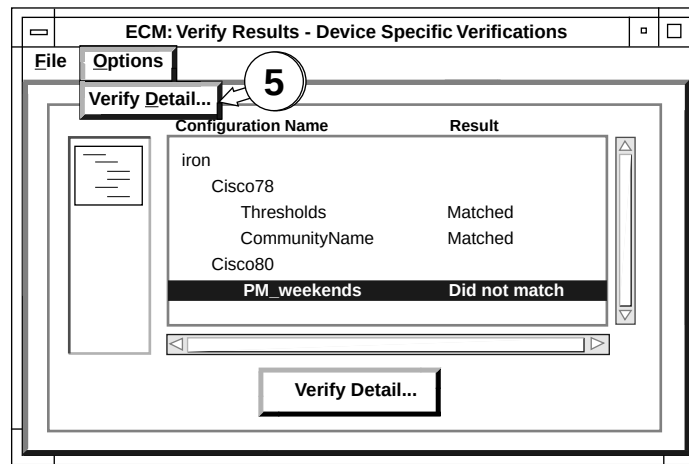
Figure 6-1. Verifying Device Specific Configurations

After you click Yes in the confirmation box, ECM performs the verification by first capturing the configuration of the selected device(s). Then it compares the captured (actual) configuration with the expected configuration for each configuration selected and displays the results in a Verify Results window. The expected configuration(s) is that which is stored on ECM in the landscape in which it is saved.

The Verify Results window shows you the configuration(s) nested under the device nested under its landscape in the Device Name field with the verification results in the Result field. The Result field may say “Matched” or “Did not match.” See [Figure 6-2](#).



If ECM cannot capture the configuration at the beginning of the verification process, it displays the message, “Error verifying configuration: Capture for Verify failed.” To proceed, click on the **OK** button in the message box. The Verify Results window then shows you that the configurations did not match. In the Verify Results window, click on the **Verify Detail** button to open the Verify Detail window. Notice that some of the device’s values appear as **<No Value>** in the Verify Detail window because ECM could not capture them.

Figure 6-2. The Verify Results Window

- To see the verification details of a configuration verified, select it in the Verify Results window and click on the **Verify Detail** button or select the **Verify Detail** option under the Options menu.

After you click on Verify Detail, a Verify Detail window appears with View All selected. The Attribute field in this window contains attributes with either an ✖, a ✓, or a – in front of them. An ✖ indicates that the device value and the configuration value do not match. A ✓ indicates that the device value and the configuration value match. A – indicates that the attribute cannot be read and therefore is ignored for the verify. In this case, there is no effect on the Match/Did Not Match status.

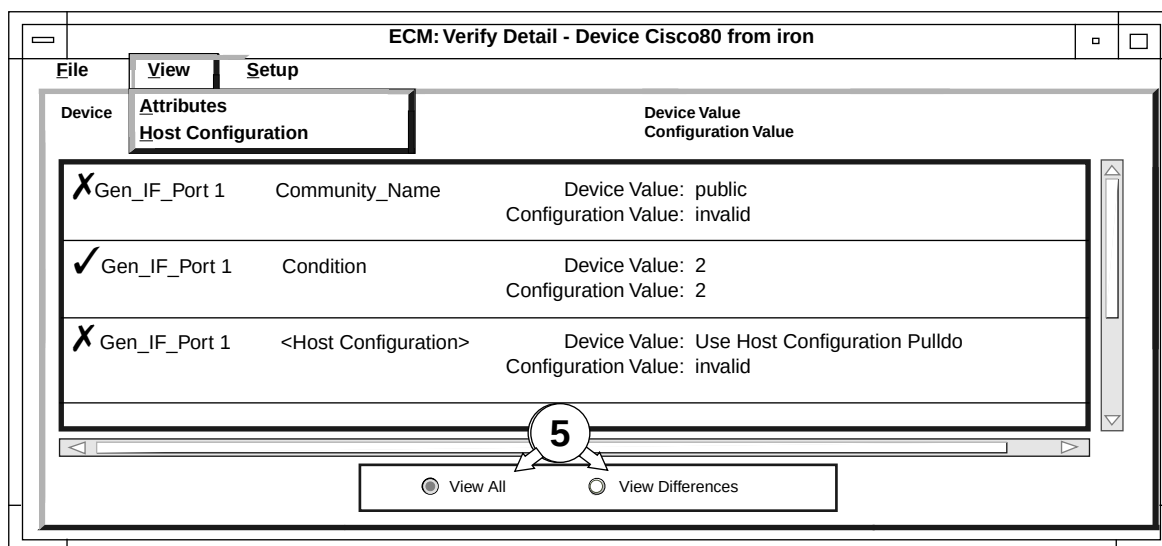
- Click on the View buttons, **View All** and **View Differences**, to toggle between the views.
 - View All** displays all attributes. The Attribute field contains attributes with both ✖s and ✓s. See [Figure 6-3](#).
 - View Differences** shows only those attributes that do not match. The Attribute field contains only attributes with ✖s in front of them.



The View menu in the Verify Detail windows contains two options, Attributes and Host Configuration. The Attributes option displays the attributes. The Host Configuration option, which is disabled (grayed-out) for all devices except Cisco routers, displays the Cisco host configuration. Use these options to toggle between the host configuration (when available) and attributes. See the section [Verifying the Cisco Host Configuration](#), on Page 6-13, for details.

7. Print verification results for your records. Refer to [Printing Verification Results](#), on Page 6-11, for more details.
8. If necessary, remove non-matching attributes from the configuration. See the next section, [Removing Non-Matching Attributes](#), for more details.

Figure 6-3. The Detail Window, View All Selected



Removing Non-Matching Attributes

If you have ECM privileges to create and edit configurations (ECM,0-2), you can modify a configuration from the Verify detail windows. The Remove Non-Matching Attributes option in the Setup menu allows you to delete attributes that do not match from the configuration. You may want to use this option to quickly remove attributes that are unnecessary or attributes that are triggering a rollback during safe load.

There are a few points to remember when you use this option.

- The Remove Non-Matching Attributes option will appear grayed-out if you do not have permission to modify configurations.
- You cannot use this option to remove the non-matching host configuration.
- When you use this option, ECM saves the changes for you.

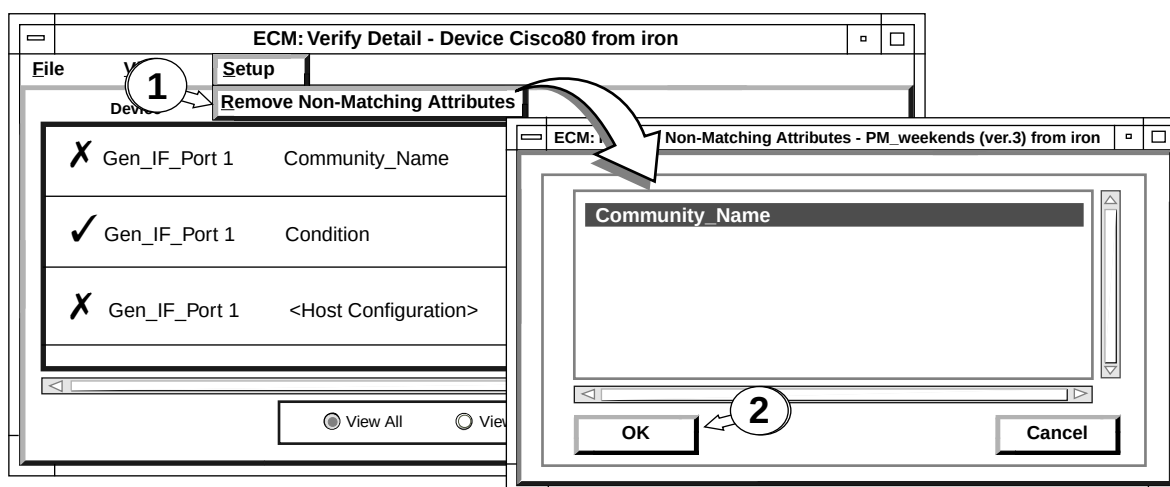
- Although the Verify Results and Verify Details windows do *not* reflect the change, the Configurations and Main windows show you that the attributes have been removed.

Follow these steps to delete non-matching attributes from the configuration:

- In the Verify Detail window, click on the **Remove Non-Matching Attributes** option under the Setup menu. See [Figure 6-4](#).
- In the Remove Non-Matching Attributes dialog box that appears, select the attribute(s) you want to delete and then click on **OK**.

ECM saves the changes and returns you to the Verify Detail window.

Figure 6-4. Removing Non-Matching Attributes from the Configuration



Verifying Shared Configurations

To verify shared configurations:

- Open the ECM Main window and make sure it says Shared Configurations in the menu bar. If it does not, select **Shared Configurations** from the View menu.
- Select the configuration you want to verify. You can verify only one configuration at a time.
- You can verify against multiple devices of the same type. Click on the Choose button to select other or more devices than that selected. In [Figure 6-5](#), two devices are selected: Cisco78 and Cisco80. For the procedure on selecting devices, see Step 2 in [Loading Shared Configurations](#), starting on Page 5-23.
- Click on either the **Verify** button or menu option.

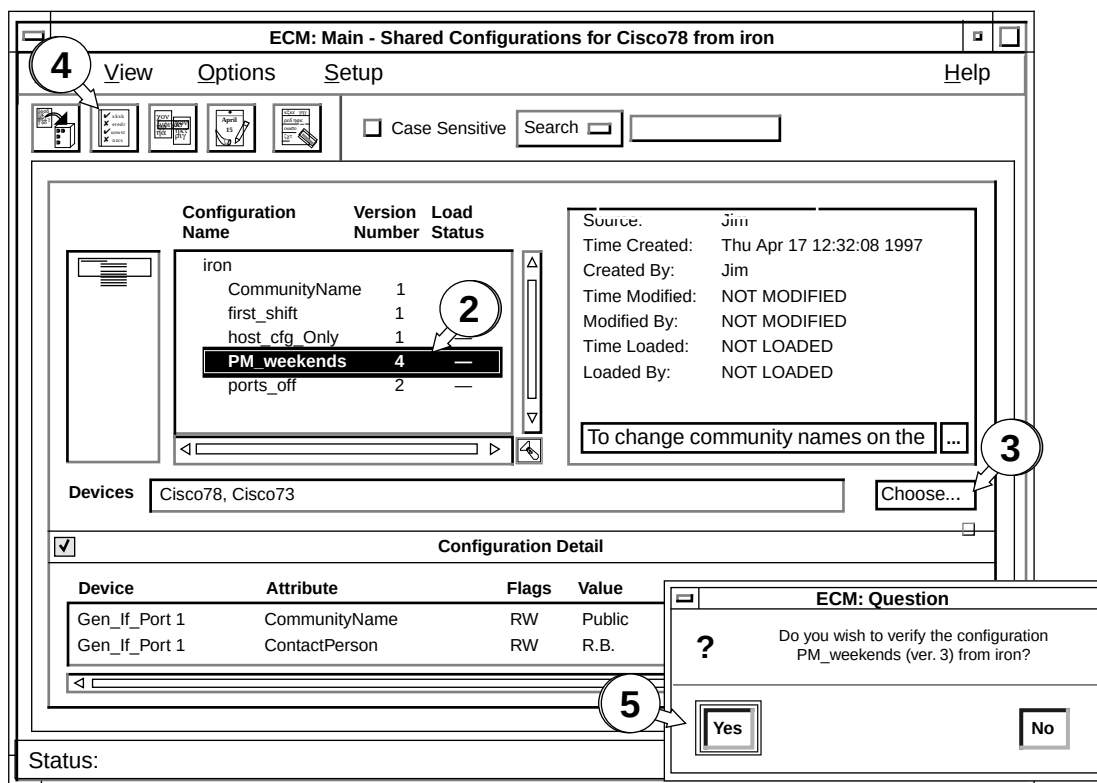


When you click on Verify, ECM asks you to confirm the verification.

5. If you want to continue, click on **Yes** in the prompt box.

If you don't want to continue, click **No**.

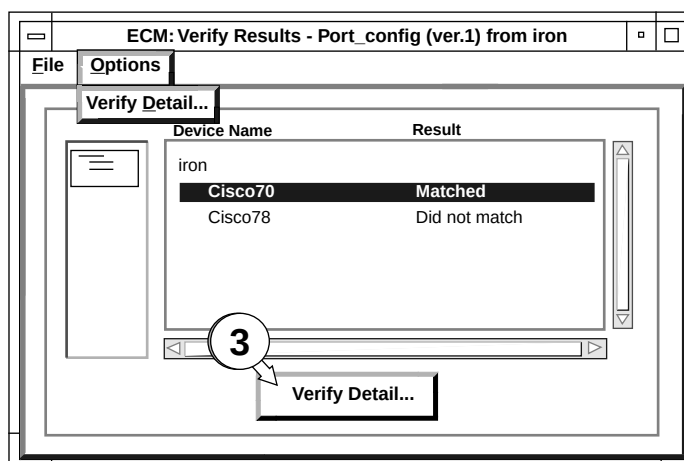
Figure 6-5. Verifying Shared Configurations



ECM verifies the configurations of the specified devices and then displays a Verify Results window, similar to that in [Figure 6-6](#). The Result field next to each device may say “Matched” or “Did not match.”



If ECM cannot capture the configuration of a device, it attempts to verify all the selected devices but, at the end of the verification, displays the message, “Error verifying configuration: Capture for Verify failed.” Click on the **OK** button in the message box to proceed. Then select a device with a result of “Did not match” and click on Verify Detail. You can identify the device that caused the error because it has attribute values of **<No Value>**.

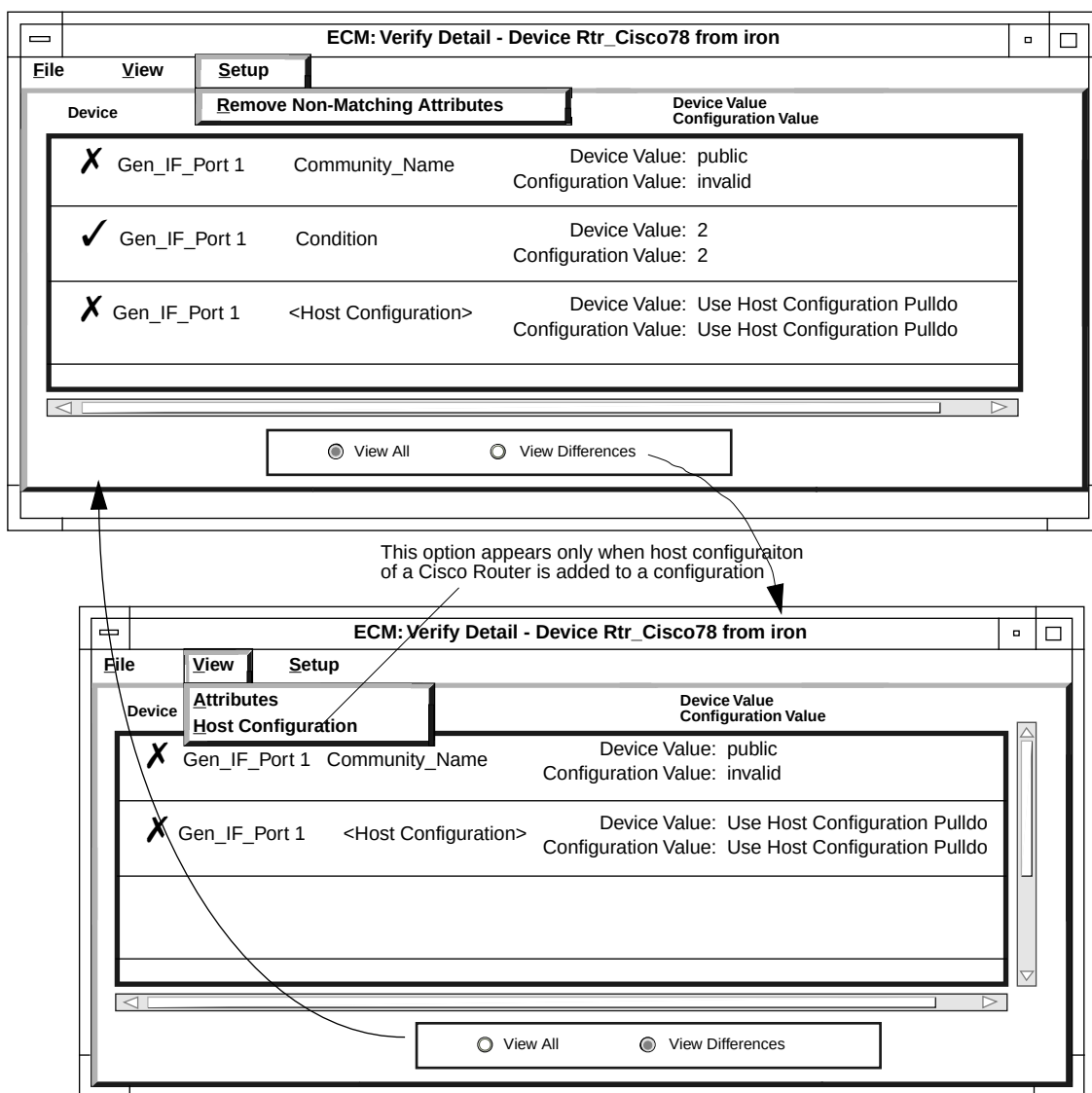
Figure 6-6. Verify Results Window

6. Check each device to see the status of its attributes. To do this:
 - Select a device in the Verify Results window and press the **Verify Detail** button or click on the **Verify Detail** option in the Options menu.
 - Or double click on a device name.
 - Or select a device and press **Return**.

A Verify Detail window, similar to that in [Figure 6-7](#), is displayed.

7. In the Verify Detail window, click on the View buttons, **View All** and **View Differences**, to toggle between the views. See [Figure 6-7](#):
 - **View All** displays all attributes. The Attribute field contains attributes with both **✗**s or **✓**s in front of them.
 - **View Differences** shows only the attributes that do not match. The attribute field contains attributes with **✗**s in front of them.
8. Print verification results for your records. Refer to [Printing Verification Results](#), on Page 6-11, for more details.
9. If necessary remove non-matching attributes from the configuration. Refer to [Removing Non-Matching Attributes](#), on Page 6-6, for more details.
10. Repeat steps [6](#) through [9](#) for each device.

Figure 6-7. The Detail Windows, View All and View Differences



The View menu in the Verify Detail windows contains two options, Attributes and Host Configuration. The Attributes option displays the attributes. The Host Configuration option, which is disabled (grayed-out) for all devices except Cisco routers, displays the Cisco host configuration. You use these options to toggle between the host configuration (when available) and attributes. Refer to [Verifying the Cisco Host Configuration](#), on Page 6-13, for details about these options.

Viewing and Modifying Verify-Failure Alarms

By default, all ECM verification failures generate an alarm in SpectroGRAPH. SpectroGRAPH indicates a “Verify Failure” alarm in the following way: the device flashes orange in the Topology View, an alarm entry appears in the Alarms window, and an alarm event appears in the Event Log.

ECM alarm defaults are set at installation. However, after installation you can modify the color of the alarm or turn off the alarm mechanism altogether. For these procedures, refer to [Understanding and Modifying ECM Alarms in SPECTRUM](#), starting on Page 9-9.

Printing Verification Results

ECM does not save verification data. Because of this, you may want to print Verify Results after you verify configurations.

When you are verifying configurations, you can print the following:

- Verify Results.
- Verify Details.
 - View All and View Differences
- Verify Details for the Cisco host configuration file.
 - View All and View Differences

To print verification results:

1. Click on the **Print** option in the File menu of the Verify Results window or the Verify Detail windows, depending on what information you want to print. (Remember that there are different Detail windows for attributes and for the Cisco host configuration.)

The Printer dialog box appears.

2. Specify the name of your printer and the printer type—either ASCII or PostScript—and confirm your selection by clicking on **OK**. (The order of these steps differs slightly depending on the machine that you are working with.)

ECM prints the results. See the samples in [Figure 6-8](#).



Even though your Cisco router configuration can include both attributes and the host configuration, you must print the verification results separately. To print complete verification results, select the Print option in the Verify Detail windows of both the host configuration and the attributes.

Figure 6-8. Sample Printouts of Verify Results and Verify Detail

11:30 AM Mon May 5 1997		Enterprise Configuration Manager		Page 1	
Verify Results for Configuration all_attr (ver. 4) from iron					
Device Name		Result			
cisco70		Matched			
cisco78		Did not match			
cisco68		Did not match			
cisco62		Matched			

12:24 AM Mon May 5 1997		Enterprise Configuration Manager		Page 1	
Verify Details for Configuration all_attr (ver. 4) on Device cisco78 from iron					
Attribute Name		:	Acknowledged		
Attribute State		:	Match		
Configuration Value		:	TRUE		
Device Value		:	TRUE		
Attribute Name		:	Apps_Created_State		
Attribute State		:	Match		
Configuration Value		:	1		
Device Value		:	1		
Attribute Name		:	AutoPlaceRowOffsetX		
Attribute State		:	Match		
Configuration Value		:	30		
Device Value		:	30		
Attribute Name		:	AutoPlaceRowOffsetY		
Attribute State		:	Match		
Configuration Value		:	100		
Device Value		:	100		
Attribute Name		:	Button_List		
Attribute State		:	Match		
Configuration Value		:	4.0.0.0.70.0.0.0.FF.FF.0.0.1.0.0.0.52.74.72.5F.43.69.73.6.3.6F.4D.2F.43.73.6F.6E.66.69.2E.33.30.0.0.0.0.A7.40.7		
Device Value		:	4.0.0.0.70.0.0.0.FF.FF.0.0.1.0.0.0.52.74.72.5F.43.69.73.6.3.6F.4D.2F.43.73.6F.6E.66.69.2E.33.30.0.0.0.0.A7.40.7		
Attribute Name		:	Change_Stamp		
Attribute State		:	Did Not Match		
Configuration Value		:	14		
Device Value		:	15		

Verify Results

Verify Details

Verify Results

Verify Details

Verifying the Cisco Host Configuration

ECM allows you to verify the Cisco host configuration commands when you are verifying the configuration of devices. ECM verifies a Cisco host configuration by comparing each line in the router file to the configuration file. It displays both files, line by line, in the Verify Detail window. Any line that does not match appears in a red band.

To verify a Cisco router host configuration:

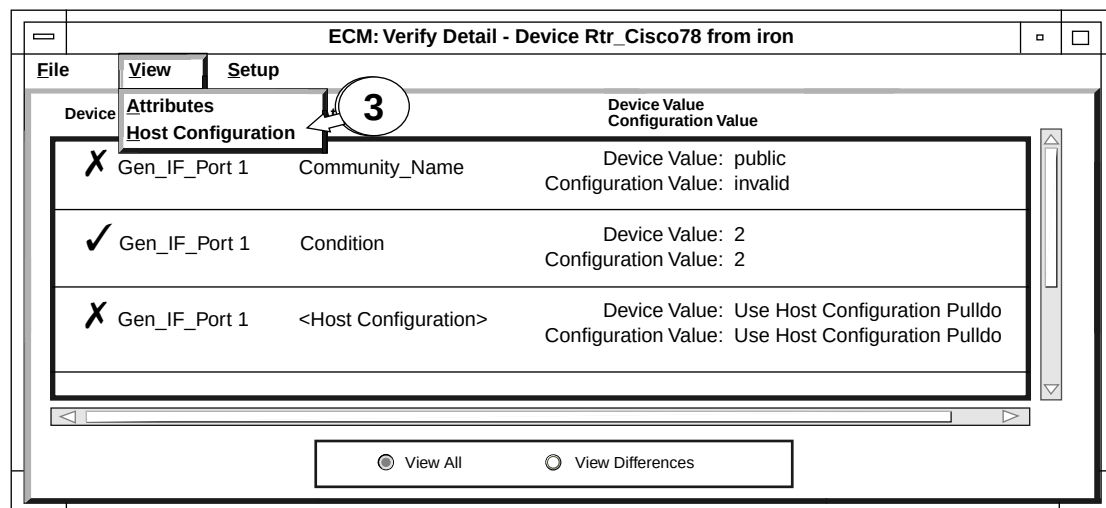
1. Begin with the same verification procedures that you would use for any device:
 - a. Select the type of configuration you want from the View menu of the Main window.
 - b. Select the configuration(s) and device(s) you want to verify.
 - c. Click on the **Verify** button and click **Yes** to the confirmation prompt.
 - d. View the result.
2. When you access the Verify Results window, click on the **Verify Detail** button or option.

ECM displays a Verify Detail window. Notice that the View menu includes a Host Configuration option and an Attributes option. See [Figure 6-9](#).

- The Host Configuration option in this window allows you to access the verification details of the Cisco host configuration.
- The Attributes option allows you to view the attributes.

3. Click on the **Host Configuration** option in the View menu of the Verify Detail window.

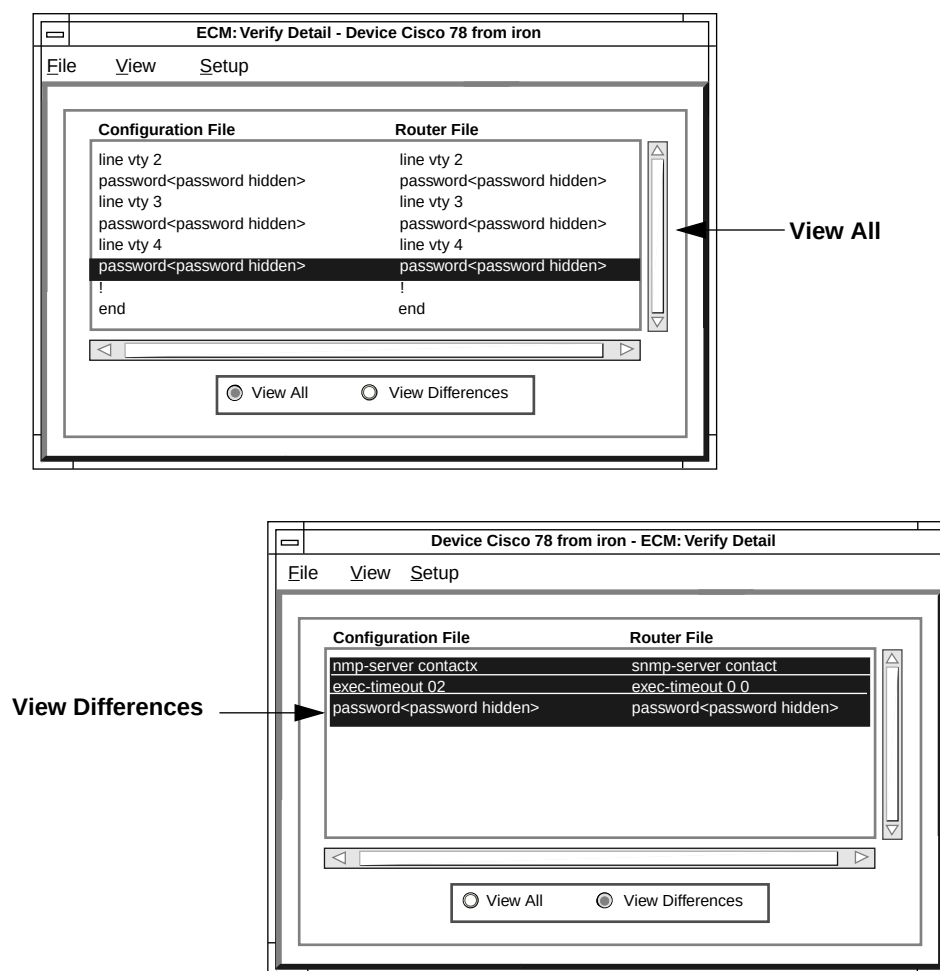
Figure 6-9. The Host Configuration Option in the Verify Detail Window



When you click on the Host Configuration option, a Verify Detail window for the Cisco host configuration appears. See [Figure 6-10](#). Instead of attributes, this window displays, side by side, the command lines of the Configuration file and the Router file. Any line that does not match appears in a red band. Notice that host configuration passwords appear as **password <password hidden>**.

4. Click on the View buttons, **View All** and **View Differences**, to toggle between the respective views:
 - **View All** displays every command line. The lines that do not match are highlighted in a red band.
 - **View Differences** displays only the lines that do not match. See [Figure 6-10](#).

Figure 6-10. The Detail Window for Cisco Host Configuration File



5. Print verification results for your records. Click on the **Print** option in the File menu of either the View All or View Differences window.

Figure 6-11 is a sample Verify Detail printout of the Cisco host configuration.

Figure 6-11. Verify Detail Results of Host Configuration (View All)

2:24 AM Mon Aug 4 1996

Enterprise Configuration Manager

Page 1

Verify Details for Configuration cisco_attr_A (ver. 2) on Device cisco1 from iron

Line Number	:	0
Line State	:	Match
Configuration File	:	
Router File	:	
Line Number	:	1
Line State	:	Match
Configuration File	:	!
Router File	:	!
Line Number	:	2
Line State	:	Match
Configuration File	:	enable-password ena
Router File	:	enable-password ena
Line Number	:	3
Line State	:	Match
Configuration File	:	!
Router File	:	!
Line Number	:	4
Line State	:	Match
Configuration File	:	!
Router File	:	!
Line Number	:	5
Line State	:	Match
Configuration File	:	interface Ethernet 1
Router File	:	interface Ethernet 1
Line Number	:	6
Line State	:	Match
Configuration File	:	no ip address
Router File	:	no ip address
Line Number	:	7
Line State	:	Match
Configuration File	:	shutdown
Router File	:	shutdown

6. Click on the **Attributes** option in the View menu to return to the Verify Detail window for attributes.

Viewing Hidden Host Configuration Passwords

In the Host Configuration Verify Details windows, Cisco host configuration passwords always appear as <password hidden>. To view passwords you have to return to the Configuration window.

However, even when passwords are hidden in the Verify Details window, you can still see if the passwords in the configuration match those on the router. If the line “password<password hidden>” appears in a red band, the passwords do not match. Otherwise the passwords match.

To view the configuration's host configuration passwords:

1. If desired, leave the Verify Details windows open. Then return to the ECM Main window.
2. From the Setup pull-down menu, open the Configurations window. (The configuration you have been using in the Verify operation should be selected.)
3. Click on the **Host Configuration** button in the Configurations window to open the Edit Host Configuration window. You can view the host configuration and all passwords in the Edit Host Configuration window.
4. Print the host configuration so you can compare it to the host configuration on the device.

To view the router's host configuration passwords:

1. Leave the Verify Details windows open if desired. Then return to the ECM Main window.
2. From the Setup pull-down menu, open the Configurations window and capture the host configuration of the device.
3. Once you have captured the configuration, click on the **Host Configuration** button in the Configurations window to open the Edit Host Configuration window. You can view the host configuration and all passwords in the Edit Host Configuration window.
4. Print the host configuration so you can compare it to the previous printout.



Chapter 7

Importing and Exporting

This chapter shows you how to import and export ECM templates and configurations.

In This Chapter

- [*Why Import or Export Configurations and Templates*](#)
Reasons for importing or exporting configurations and templates.
- [*How the Import/Export Options Work*](#)
A detailed description of the import/export operations.
- [*Importing/Exporting Configurations*](#)
how to import or export configurations.
- [*Importing/Exporting Templates*](#)
How to import or export templates.
- [*Using the File-Selection Dialog Boxes*](#)
How to use the file selection dialog boxes.

Why Import or Export Configurations and Templates

The import/export options are helpful in the following situations:

- When you want to **back up** your configurations and templates.

Since users can easily modify and delete ECM configurations and templates (intentionally or by accident), network administrators may want to copy originals from the ECM database to a file or files on their workstations.

- When you want to **share** configurations and templates with other users on the network.

Exporting/importing configurations and templates saves you time since you do not have to create the standard templates and configurations again and again. Other ECM users can import the template and configuration files stored on your workstation or you can transfer the files over the network to their workstations.

- When you need to **save** a copy on **tape** or on **diskette**

Once you export configurations or templates to a file on your workstation, you can save the file on disk or tape. This copy can then be taken on a diskette or tape to another site.

How the Import/Export Options Work

With the exception of the type of file imported or exported, the ECM import/export options function in similar ways in both the Templates and Configurations windows.

The following sections describe how the Import, Export, and Export All options work.

Import

Imports from What

The Import option imports the templates or configurations that are contained in the specified file. This file may contain one or more configurations or templates, depending on what you have saved to it.

Imports to What

Once imported, the templates or configurations are stored in the ECM database and appear in the appropriate Templates or Configurations window with their original names.



Do not confuse the name of the configuration or template itself with the name of the file in which the configuration or template is stored. See [Figure 7-1](#) on Page 7-4.

Updates Version Number

When you import templates or configurations, you should understand how ECM versioning works. ECM interprets the imported template or configuration as the next version of the template or configuration if previous versions exist.

To illustrate this, let us assume that you exported a configuration called Weekday Version 3. Then you created two more versions of this configuration so that the Weekday configuration in ECM has become Version 5. If you now import the Weekday Version 3, it is listed in ECM as Weekday Version 6 because ECM assumes it is the next version in the sequence.

Imports All Device Types

When you use the Import option, you can import configurations and templates for all device types in the file, regardless of the type of device you are working with.

However, remember that you will see only the configurations or templates that are available to your device type in the Configurations or Templates windows.

For example, if you are running ECM for a HubCSIEemme device and you import a configuration for a Rtr_CiscoIGS device, the imported configuration will not be visible in the HubCSIEemme's Configurations window. You have to close ECM, select the Rtr_CiscoIGS in SpectroGRAPH, and open ECM again before you can see that this configuration has been imported.



If you import a device specific configuration to a landscape that does not have the device to which the configuration is specific, the configuration loses its device specific status. After you import device specific configurations, be aware that these configurations may be listed as shared configurations.

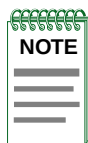
Export

Export What to What

The Export option exports one template or one configuration to a specified file.

When you click on the Export option, a file selection dialog box appears so you can specify the directory and file to which the configuration or template should be exported. Although you can select any directory, ECM's default export directory is:

```
<ECM install directory>/ecm/eximport
```



The version numbers in [Figure 7-1](#) represent the version numbers of the configuration when it was exported. If you import these configurations into ECM, these version numbers may change. ECM assumes the imported configuration is the next version of the configuration if others exist in the ECM database.

Figure 7-1. A File Containing Two Exported ECM Configurations

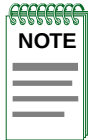
START>			
Configuration Attributes:			
Id	Name	Value	
0x1006e	Model_Name	weekend_config	← Configuration Name
0x820001	apply_to_Cmtype	0xd0004	
0x820002	model_specific	0x0	
0x820003	mtype_specific	0xd0004	
0x82001c	sequence	3	← Version #
0x82001a	description	><<<<	
0x820006	cfg_device_special	NO_SPECIAL_LOGIC	
Client Attributes:			
Id	Name	Value	
0x118f5	AutoPlaceOffsetY	30	
0x118f4	AutoPlaceOffsetX	0	
0x10023	Agent_Port	161	
<END			← End/Start Markers
START>			
Configuration Attributes:			
Id	Name	Value	
0x1006e	Model_Name	daily_config	← Configuration Name
0x820001	apply_to_Cmtype	0xd0004	
0x820002	model_specific	0x0	
0x820003	mtype_specific	0xd0004	
0x82001c	sequence	1	← Version #
0x82001a	description	><<<<	
0x820006	cfg_device_special	NO_SPECIAL_LOGIC	
Client Attributes:			
Id	Name	Value	
0x10b48	If_State	1	
0x11b4e	IfOwnsRel	0x10018	
<END			

CFG and TPL File Types

The file selection dialog box provides an optional suffix for the file — .cfg for configurations and .tpl for templates — so that you can easily identify the file when you want to import it.

Exporting to an Existing File

You can also export templates and configurations to an existing file. When you do this, ECM prompts you to see if you want to overwrite the file or simply append the configuration or template to the existing file. If you append to an existing file, ECM adds the new configuration or template with START and END markers to indicate where each template or configuration begins and ends. [Figure 7-1](#) on Page 7-4 shows a sample export file.



ECM allows you to export configurations and templates to the same file. However, to avoid confusion, you may want to export configurations and templates to different files with file names ending in the appropriate suffix, either `.cfg` or `.tpl`.

Export All

Export All to One File

The Export All option exports all ECM templates or configurations for all preferred landscapes to the specified file. You select the file in a file selection dialog box just as you would with the Export option. ECM provides the same default directory and filename suffixes for Export All as with the Export option. ECM copies all the templates or configurations to the file, adding START and END markers to indicate where each configuration or template begins and ends.

For details about the file selection dialog box, refer to [Using the File-Selection Dialog Boxes](#), on Page 7-9.

Importing/Exporting Configurations

When you want to import or export configurations, use the import/export options located in the Options menu of the Configurations window, illustrated in [Figure 7-2](#).

To do so:

1. In the ECM Main window, click on the **Setup, Configurations** option in the menu bar.

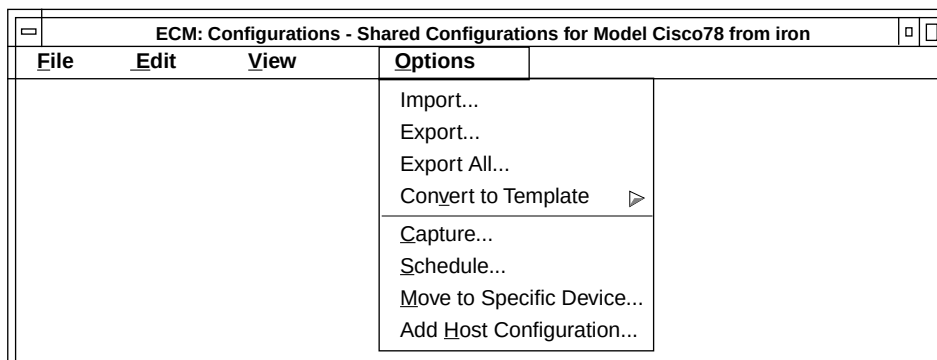
The Configurations window appears.

2. Make sure you are working with the desired type of configuration — either shared or device specific. If necessary, select Shared Configurations or Device Specific Configurations from the Options menu. These two

options alternate. If the window displays shared configurations, you can move to device specific ones, and vice versa.

3. Depending on the operation you want, do one of the following procedures.

Figure 7-2. Import/Export Options for Configurations View



Importing Configurations

To import a configuration:

1. In the Configurations window, click on **Options, Import** option in the menu bar. The Import Configuration file selection dialog box appears.
2. In the File Selection dialog box, select the file containing the configurations you want to import and click on **OK**.

Once imported, the configuration appears in the Configuration window with its original name, a version number consistent with the sequence of ECM versions, and the Source status of "Imported."

Remember that a device specific configuration loses its device specific status if you import it to a landscape that does not contain the device to which it is specific. As a result, this imported configuration will appear in the Shared Configurations window for devices of this type.

Exporting a Configuration

To export a Configuration:

1. In the Configurations window select the configuration to export.

2. Click on the **Options, Export** option in the menu bar. The Export Configuration file selection dialog box appears.
3. In the file selection dialog box, specify the destination directory and file. (You can type the file name before the optional suffix **.cfg**, which ECM provides.)
4. Click on **OK**. ECM copies the configuration to the specified file.

Exporting all configurations

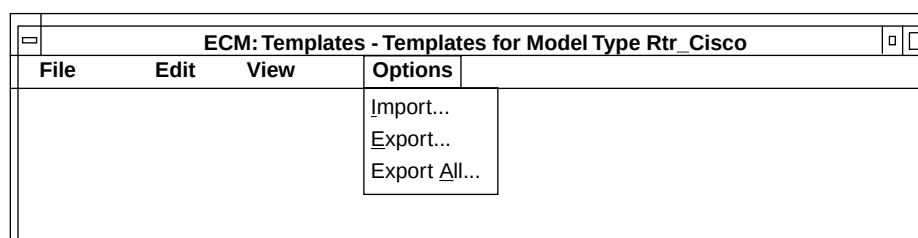
To export all configurations:

1. In the Configurations window, click on the **Options, Export All** option in the menu bar. The Export All Configurations file selection dialog box appears.
2. In the file selection dialog box, specify the destination directory and file. (You can type the file name before the optional suffix **.cfg**, which ECM provides.)
3. Click on **OK**. ECM copies every configuration (for every device type in each preferred landscape) to this file.

Importing/Exporting Templates

When you want to import or export templates, use the import/export options located in the Options menu of the Templates window, illustrated in [Figure 7-3](#).

Figure 7-3. Import/Export Options for Templates View



To do so:

1. In the ECM Main window, click on the **Setup, Templates** option in the menu bar.

The Templates window appears.

2. Depending on the operation you want, do one of the following procedures.

Importing Templates

To import templates:

1. In the Templates window, click on the **Options, Import** option in the menu bar. The Import Template file selection dialog box appears.
2. Using the file selection dialog box, select the file containing the templates you want to import.
3. Click on **OK**.

Once imported, the template appears in the Templates window with its original name, a version number consistent with the sequence of ECM versions, and the Source status of “Imported.”

Exporting Templates

To export templates:

1. In the Templates window, select the template.
2. Click on the **Options, Export** option in the menu bar. The Export Template file selection dialog box appears.
3. Using the file selection dialog box, specify the destination directory and file. (You can type the file name before the optional suffix `.tpl`, which ECM provides.)
4. Click on **OK**. ECM copies the template to the file.

Exporting All Templates

To export all Templates:

1. In the Templates window, click on the **Options, Export All** option in the menu bar. The Export All Templates file selection dialog box appears.
2. Using the file selection dialog box, specify the destination directory and file. (You can type the file name before the optional suffix `.tpl`, which ECM provides.)
3. Click on **OK**. ECM copies every template for every device type to this file.

Using the File-Selection Dialog Boxes

The file-selection dialog boxes that you use with the import/export options open to a default directory and provide a filename suffix for your convenience.

If You Accept the Default Directory...

If you are going to export files to or import files from the default directory <SPECTRUM directory>/ecm/eximport, follow these steps:

1. Make sure the desired landscape is specified in the Creation Landscape field. This is the landscape to which you will export or from which you will import templates and configurations.

If you want another landscape:

- a. Click on the Creation Landscape button to bring up the Creation Landscape dialog box.
 - b. In the Creation Landscape dialog box, select the desired landscape. Then click on **OK**.
2. In the file-selection dialog box, type the file name in the Selection field in front of the suffix **.cfg** or **.tpl**. (See [Figure 7-4](#).)
 3. Press **OK**.

ECM returns you to the Templates or the Configurations window.

If You Want Another Directory...

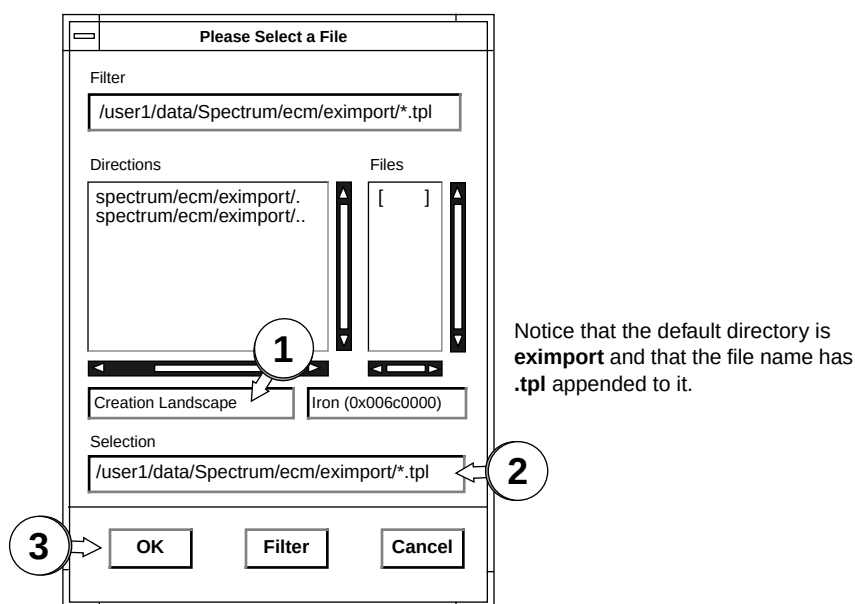
If you want to export to or import from a directory other than the default, you can use the file selection dialog box to navigate through the directories until you reach your destination. Then you can select a file or name a new file. To do so:

1. Navigate through the directories in one of the following ways:
 - Type a directory name in the Filter field, then press the **Filter** button. The directories that are under this directory now appear in the Directories field.
 - Move up a directory by double-clicking on the **/..** directory. Double-click on any directory to view the files within it.
2. To view long path names:

Resize the File-Selection dialog box by dragging on the corners.

or

Figure 7-4. The File-Selection Dialog Box — Export Template



Position the mouse over the field and left-click. Then use the arrow keys (left and right) to scroll the text.

3. When you are in the correct directory, specify the file name in one of the following ways:
 - Single-click on a file name in the Files field. The file name with the suffix .cfg or .tpl is inserted in the Selection field. Then click **OK** or press the **Return** key.
 - Type a new file name in the Selection field in front of the suffix .cfg or .tpl. Then click **OK** or press the **Return** key.
 - Double-click on a file name in the Files field. The file name with the suffix .cfg or .tpl is inserted in the Selection field.

ECM returns you to the Templates or the Configurations window.



On the NT platform, use **/Drive=** to indicate the drive. For example, an NT user might specify the following filter in the Filter field:
/C=/ecm/eximport/*.cfs
 This could be the file name in the Selection field:
/C=/ecm/eximport/rtr.cfs



Chapter 8

Scheduling Tasks

This chapter shows you how to schedule automatic captures, loads, and verifications of configurations and describes the ECM Log file, which stores the results of scheduled operations.

In This Chapter

- [*Why Schedule Operations in ECM?*](#)
Reasons for scheduling operations in ECM.
- [*NT Scheduler Requirements*](#)
Requirements for scheduling operations on NT.
- [*Accessing the Scheduler*](#)
How to access the scheduler.
- [*Scheduler Dialog Box*](#)
A description of the Scheduler dialog box with all its options.
- [*Selecting a Task to Schedule*](#)
Schedule procedure differs slightly, depending on the task.
- [*Scheduling Loads and/or Verifications*](#)
How to schedule a load and/or a verification.
- [*Scheduling Captures*](#)
How to schedule a capture.
- [*Scheduling a Task — Procedure Details*](#)
The details on how to schedule a task.
- [*Editing a Schedule*](#)
How to edit a schedule.
- [*Viewing the Results of Scheduled Operations*](#)
How to view the results of a scheduled operation.

Why Schedule Operations in ECM?

ECM provides administrators with the option of scheduling the time and frequency of automatic captures, loads, and verifications. This feature has many benefits. Specifically, the administrator can:

- Schedule loads, captures, and verifications during low-traffic hours.
- Maintain more stable configurations by scheduling automatic loads at regular intervals.
- Check the integrity of the network with periodic, automatic captures and verifications of configurations.
- Automate many of the day-to-day configuration management operations.

ECM sends information about the operations that the Scheduler performs to the SPECTRUM Event Log and the ECM Log file. You can view the results of any operation performed by the Scheduler in these two places. [Viewing the Results of Scheduled Operations](#), starting on Page 8-13, describes how to use the SPECTRUM Event Log and the ECM Log file.

NT Scheduler Requirements

Because NT uses the Schedule Service (instead of the SPECTRUM UNIX cron utility) to schedule tasks, NT requires the following before you can schedule ECM operations:

- The NT Schedule Service must be running for the ECM Scheduler to function.

To make sure that service is running for future scheduled operations, set the Startup Type for the Schedule Service to “Automatic.” This means the Schedule Service will be started automatically whenever the computer is restarted.

- The Schedule Service must also log on with the proper User Account.

To make sure the Schedule Service logs on without errors:

1. Be sure to specify that the Schedule Service logs on as a member of either the Administrator’s group or the Backup Operator’s group. (Do not specify the System Account—it cannot access the network.)
 2. Then make sure the user or user group assigned to the Schedule Service is also defined as a SPECTRUM user in SpectroGRAPH.
- If you find that the Scheduler is not performing ECM tasks as scheduled, check the NT Schedule Service Startup parameters.

Even when these Schedule Service parameters are incorrect, you can schedule ECM operations. The Scheduler, however, will not be able to perform the operations.

See Windows NT Help for Schedule Service for more information.

Accessing the Scheduler



To access the scheduler, first select what you want to schedule then click on the Schedule button/option. The ECM Schedule button/option is located in both the Main and the Configurations windows:

- The Main window allows you to schedule loads and verifications for the selected device(s).
- The Configurations window allows you to schedule captures for the selected device(s).

Scheduler Dialog Box

The ECM Scheduler, allows you to schedule the time and frequency of automatic loads, verifications, and captures. [Figure 8-1](#) on Page 8-4 shows the Scheduler Dialog Box; [Table 8-1](#) on Page 8-4 explains the functions of its various controls.

The Add, Modify, and Remove buttons in the Scheduler dialog box allow you to edit scheduled entries.

Notice that some buttons in the Scheduler dialog box are grayed-out when you open the dialog box and when you make selections. A grayed-out button indicates that the option is not available at that time.



Only entries that have been scheduled using ECM appear in the Scheduler:

- Scheduled entries for Load and Verify appear in the Scheduler when you access it from the Main window.
- Scheduled entries for Capture appear in the Scheduler when you access it from the Configuration window.

Figure 8-1. Scheduler Dialog Box

The diagram shows the 'ECM: Scheduler' dialog box. It has a title bar with a close button. The main area is divided into two panes. The left pane contains a 'Verify' checkbox (callout 2), a 'Command' text field (callout 3), a 'Frequency' dropdown menu set to 'Once' (callout 4), a calendar for September 1998, and a time field set to 'At 16:42'. The right pane is titled 'Aug 22 Scheduled Entries 16:42' (callout 1) and contains a large empty list area (callout 5) with 'Add', 'Modify', and 'Remove' buttons at the bottom. At the bottom of the dialog are 'Save', 'Reset', and 'Close' buttons.



When you use the Add, Modify, or Remove button, ECM saves the information temporarily in the buffer. You must then use the Save button to send the information in the buffer to the scheduled queue.

Table 8-1. Functions of Scheduler Dialog Box Controls

Button	Function
Add	Adds the highlighted entry in the Scheduled Entries field. To add an entry: specify the task, frequency, date, and time of the task in the appropriate fields. Then click on Add. Note that Add inserts entries only in the Scheduled Entries field whereas Save schedules the entries.

Table 8-1. Functions of Scheduler Dialog Box Controls (Continued)

Button	Function
Modify	Modifies the highlighted entry in the Scheduled Entries field. To modify an entry: highlight the entry in the Scheduled Entries field, click on the appropriate buttons in the Schedule and Frequency sections, and then click on Modify, and finally Save to schedule the modified entry.
Remove	Removes an entry in the Scheduled Entries field or in the scheduled queue itself. To delete an entry: highlight the entry, click on the Remove button and then on Save to remove the entry from the scheduled queue.
Save	Sends the new or modified entries in the Scheduled Entries field to the scheduled queue. Click on the Save button after you use the Add, Modify, and Remove buttons. If you forget to use the Save button before you click on Close, ECM prompts you to save the scheduled entry.
Reset	Discards all changes, rereads the scheduled queue, and displays the entries in the Scheduled Entries field. Click on the Reset button to see the entries that are in the scheduled queue.
Close	Closes the Scheduler dialog box. If you have forgotten to use the Save button to send entries to the scheduled queue, the Scheduler asks you if you want to discard the changes. You can click on either Yes or No.
① Current Date & Time	Display the current date and time on the system where you are running SpectroGRAPH — located above the Scheduled Entries field. The ECM Scheduler displays the time in a 24-hour format.
② Task	Enables you to specify the task that you want to schedule—either Verify or Load if you accessed the Scheduler from the ECM Main window or Capture if you accessed the Scheduler from the Configurations window. You must select the desired operation (even if it is visible when you open the window) so that the Scheduler enters the command in the Command field. When you select the Load, Verify, or Capture button, ECM prompts you to confirm your choice.

Table 8-1. Functions of Scheduler Dialog Box Controls (Continued)

Button	Function
③ Command	Displays the scheduled command. When you specify the task—Capture, Verify, or Load — the Scheduler enters the information in the Command field.
④ Frequency	Enables you to specify the frequency of captures, loads, or verifications. Frequency options are: Once, Hourly, Daily, Weekly, Monthly. You can schedule the Once frequency any time between the current date and one year later. Tasks scheduled for an Hourly, Daily, Weekly, or Monthly frequency will be performed indefinitely or until you delete or change the entry. NT Considerations: If you are running ECM on NT, the Scheduler does not include the Hourly frequency. Notice also that the Once frequency allows you to schedule an ECM operation only between the current date and one month later. Other dates appear grayed-out.
⑤ Scheduled Entries	Contains both the entries saved to the queue and entries that you have just added to the field. After you specify the frequency, date, and time of a task and press the Add button, ECM displays the entry in this field. Then when you click on Save, ECM schedules the entry. If you want to see the whole entry, enlarge the dialog box. See Figure 8-4 on Page 8-13.
	<i>An entry in the Scheduled Entries field is made up of two parts:</i> • <i>The scheduling information at the beginning of the line.</i> • <i>The command, enclosed in quotes, in the rest of the line.</i> <i>The Command field, on the other hand, contains only the command.</i>

Selecting a Task to Schedule

The procedure for scheduling a task is the same for all tasks once you have selected the task. However, the initial steps vary depending on the task.

The following sections describe both the initial steps for the specified type of schedule and summarize the whole procedure.

Refer to [Scheduling a Task — Procedure Details](#), starting on Page 8-10, as well as to the description of the [Scheduler Dialog Box](#) on Page 8-3 for further details.

Scheduling Loads and/or Verifications

Device Specific Configurations

To schedule one or more Loads or Verifications for device specific configurations:

1. Open the ECM Main window for device specific configurations. If shared configurations are displayed, from the menu bar, click on **View, Device Specific Configurations**.
2. In the Configurations Name field, select the configuration(s) that you want to load or verify.

Configurations are displayed under the devices they configure. When you select a configuration, you also automatically select the device it configures.

3. Select the **Schedule** button or menu option.
4. In the scheduler dialog box (see [Figure 8-1](#) on Page 8-4), select the task (load or verify), frequency, date, and time. Then click on the **Add** button.

If you have questions, refer to [Scheduling a Task — Procedure Details](#), starting on Page 8-10.

5. Check the newly displayed scheduled entry. If you made a mistake, select the entry, click on the appropriate schedule and frequency buttons, and then select **Modify**. When satisfied, click on **Save** and **Close**.

To delete the entry, select it, and click on **Delete**, **Save**, and **Close**.

Shared Configurations

To schedule one or more Loads or Verifications for shared configurations:

1. Open the ECM Main window for shared configurations. If device specific configurations are displayed, from the menu bar, click on **View, Shared Configurations**.
2. In the Configurations Name field, select the configuration(s) that you want to load or verify.

Configurations are displayed under the landscapes in which they are saved.

3. If the selected device(s) is not what you want, click on the **Choose** button, select the device(s) in the select devices dialog box, and click on the **Close** button to return to the Main window.

4. Select the **Schedule** button or menu option.
5. In the scheduler dialog box (see [Figure 8-1](#) on Page 8-4), select the task (load or verify), frequency, date, and time. Then click on the **Add** button.

If you have questions, refer to [Scheduling a Task — Procedure Details](#), starting on Page 8-10.
6. Check the newly displayed scheduled entry. If you made a mistake, select the entry, click on the appropriate schedule and frequency buttons, and then select **Modify**. When satisfied, click on **Save** and **Close**.

To delete the entry, select it, click on **Delete**, **Save**, and **Close**.

Scheduling Captures

To schedule a capture:

1. In the ECM Main window, select the **Setup, Configurations** option from the menu bar. The Configurations window appears.
2. In the Configurations window, click on the **Schedule** button or menu option.
3. In the scheduler dialog box (see [Figure 8-1](#) on Page 8-4), select the task, and click on **Capture**.

A Capture Configuration dialog box appears. See [Figure 8-2](#) on Page 8-9.

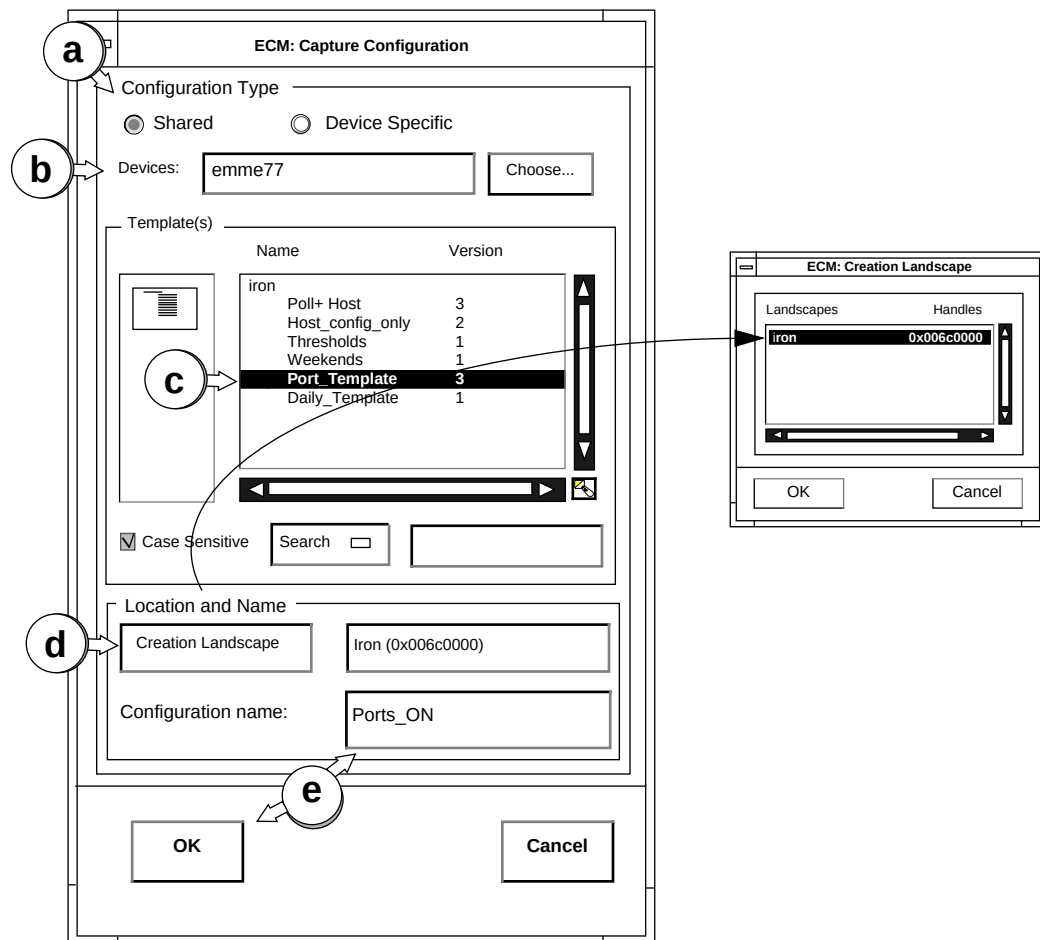
4. In the dialog box, do the following:
 - a. Select the type of configuration you want to capture: shared or device specific.
 - b. If the preselected device is not what you want, select the device whose configuration you want to capture.

To do so, click on the **Choose** button. This opens the Select Devices window containing devices of the same type as the preselected one. The device list box is single select if you chose shared configurations as the type and multiselect if you chose device specific as the type.

In the Select Devices window, select the device(s) you want and click on **OK**. This returns you to the Capture Configuration dialog box.

- c. In the Capture Configuration dialog box, select one or more templates.

You can select only one template if you chose shared configurations as the configuration type, but you can choose more than one if you choose device specific.

Figure 8-2. Capture Configuration and Creation Landscape Dialog Boxes

- d. Specify the Creation Landscape (the landscape where the configuration will be saved).

If you want to select a landscape other than the default, click on the **Creation Landscape** button to open the Creation Landscape window. Then select the landscape in this window and press **OK**. You are returned to the Capture Configuration window.

- e. Type the new configuration name in the name field and then press **OK**.

ECM returns you to the Scheduler dialog box. Notice that the Command field now contains the task you just specified.

5. In the scheduler dialog box (see [Figure 8-1](#) on Page 8-4(#)) select the frequency, date, and time. Then click on the **Add** button.

If you have questions, see [Scheduling a Task — Procedure Details](#), following, beginning with Step 4.

6. Check the newly displayed scheduled entry. If you made a mistake, select the entry, click on the appropriate schedule and frequency buttons, and then select **Modify**. When satisfied, click on **Save** and **Close**.

To delete the entry, select it, click on **Delete**, **Save**, and **Close**.

Scheduling a Task — Procedure Details

To schedule an ECM task for automatic operation at the time specified:

1. Select the task. See [Scheduling Loads and/or Verifications](#) on Page 8-7 or [Scheduling Captures](#) on Page 8-8 if you have any questions.
2. In the Scheduler dialog box, click on the task button (at the top left of the box) to select the task — either **Capture** or **Load** and **Verify**. A black box surrounds the button when it is selected.

When you select a task, the system displays a message box asking you to confirm your choice. Load also asks you to specify various load options.

3. Click on **Yes** in the message box.
 - If you are confirming a load or a verification, ECM returns you to the Scheduler.
 - If you are confirming a capture, a Capture Configuration dialog box appears in which you specify a template and a name for the configuration. See Step 4 in [Scheduling Captures](#), starting on Page 8-8, for more detailed instructions on this step.
4. Select one of the **Frequency** options — **Hourly**, **Daily**, **Once**, **Weekly**, **Monthly**.

When you select a Frequency option, the Frequency section displays additional options. See [Figure 8-3](#) on Page 8-11. Since you can schedule tasks for only a one-year period beginning with the current date, dates before and after this period are grayed-out.

5. Click on the appropriate buttons in the Frequency section to specify the date(s) and time(s) of the load, capture, or verification. [Table 8-2](#) on Page 8-12 explains the functions of the various controls.

The start time in the Once, Daily, Weekly, and Monthly options can range from 00:00 (midnight) to 23:59 (11:59 PM). Click on the increment and decrement buttons to specify the time.

Figure 8-3. The Frequency Options: Hourly, Daily, Once, Weekly, Monthly

The diagram illustrates five overlapping windows for task scheduling frequency options:

- Hourly Window:** Frequency is set to **Hourly**. The task is scheduled "At 00 minutes after the hour."
- Daily Window:** Frequency is set to **Daily**. The task is scheduled "At 18 : 00".
- Once Window:** Frequency is set to **Once**. It shows a calendar for September 1995. The task is scheduled "At 16 : 00".
- Weekly Window:** Frequency is set to **Weekly**. The task is scheduled "Repeat on: Monday" (indicated by a selected radio button). The task is scheduled "At 06 : 00".
- Monthly Window:** Frequency is set to **Monthly**. The task is scheduled "Repeat on the: 2nd" (indicated by a selected radio button). The task is scheduled "At 06 : 00".



When you specify that a task should be performed with a frequency of Hourly, Daily, Weekly, or Monthly, the Scheduler will continue performing this task until you delete or change the entry.

Table 8-2. Frequency Options

Option	Description
Once	Specifies the month, day, and start-time of a single operation: NOTE - On a unix system, this option allows you to schedule the task on any day between the current date and one year later. - On an NT system, this option allows you to schedule the task only between the current date and one month later. Other dates appear grayed-out.
Hourly	Specifies the minute at which the hourly task will be performed. The number can range from 00 to 59. This Scheduler option is not available on NT.
Daily	Specifies the time (minute and seconds) of the daily task.
Weekly	Specifies the day of the week and the time.
Monthly	Specifies the day of the month and the time.

6. When you have selected the desired scheduling options, click on the **Add** button.

ECM inserts the scheduling information in the Scheduled Entries field.

7. Repeat steps 1-5 for each new entry until you schedule all operations.

The Scheduled Entries field displays every entry that you schedule.

8. When you are finished, click on the **Save** button to send the entry or entries to the scheduled queue.

ECM will then perform the operations automatically at the specified time(s).

9. Press **Close** to close the Scheduler dialog box.

Editing a Schedule

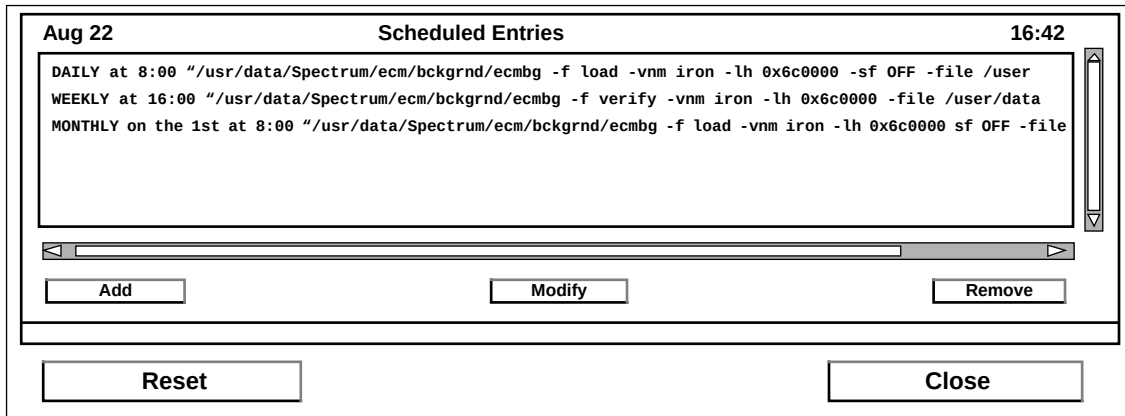
You can use the Scheduler editing options:

- To change entries before and after you save them to the scheduled queue.
- To remove entries from the Scheduled Entries field and the scheduled queue itself.

To learn about modifying the schedule, experiment with the options. If you enlarge the Scheduler dialog box by dragging on the corners, you can view the whole entry. See [Figure 8-4](#).

A Scheduled Entry consists of two parts: the *scheduled time* at the beginning of the line and the *command*, enclosed in quotes, in the rest of the line.

Figure 8-4. Expanding the Scheduler Dialog Box



Methods of Editing

Select an entry, click on the various scheduling options, and then click on the **Modify** button. Notice how ECM changes the information in the Scheduled Entries field.

To change a task from Verify to Load or the opposite, Cabletron recommends that you delete the entry and create a completely new one. See the button descriptions in the [Scheduling a Task — Procedure Details](#), starting on Page 8-10, for other ways to edit an entry.

Viewing the Results of Scheduled Operations

You can see the results of scheduled operations in two places:

- The SPECTRUM Event Log.

The Event Log, accessed in SpectroGRAPH, contains basic information about the operation such as operation time, operation success or failure. Names of devices, configurations, and templates, when applicable.

- The ECM Log file.
(by default, ecmbg.log located in <ECM directory>/log)

The ECM Log file contains more detailed information about the scheduled operation. In addition to the basic information that you would see in the

Event Log, it contains a listing of attribute names and the status of attributes, if appropriate.



Both the manual ECM operations and the scheduled ECM operations are logged in the SPECTRUM Event Log. However, only scheduled operations are logged in the ECM Log file.

The following two subsections describe these two log files in more detail.

SPECTRUM Event Log

The SPECTRUM Event Log provides a history of the events that occur on the network. Therefore, when the Scheduler performs a scheduled ECM operation, the results of the operation appear in the Event Log along with other SPECTRUM events.

To access the SPECTRUM Event Log:

1. Open SpectroGRAPH to any View window — Topology View, DevTop View, or Device View, for example.
2. In the View menu select the **New View, Events** option.

The Events option brings up a SPECTRUM Event Log, similar to that in [Figure 8-5](#) on Page 8-15.

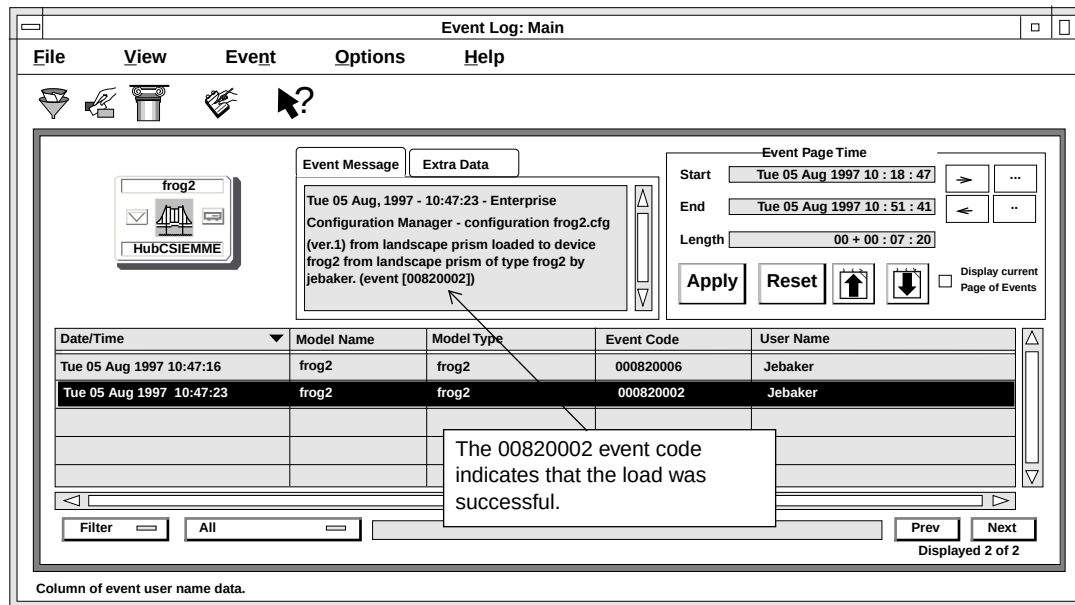
The Event Log contains the following information:

- Date and time of the event.
- Application used.
- User's name.
- Names of configurations, templates, and devices, if applicable, and the landscapes where they are located.
- A text explanation of the event.
- Event code (refer to [Interpreting ECM Event Code Numbers](#) on Page 9-8).

You can identify ECM events in the Event Log because the words “Configuration Manager” appear after the date and time.



The Event Log does not distinguish between operations performed directly by the user and operations performed by the Scheduler.

Figure 8-5. Scheduled Operations in the SPECTRUM Event Log

For more information about the Event Log, refer to [Understanding and Accessing the SPECTRUM Event Log](#), starting on Page 9-6.

ECM Log File

The ECM log file is created by the scheduler and contains only ECM scheduled information.



The ECM log file contains more detailed information about scheduled operations than the SPECTRUM Event Log. Check the ECM Log file when you want to check the status of specific attributes in a scheduled load, verification, or capture.

By default the ECM Log file is <ECM directory>/log/ecmbg.log. However, you can specify a different name and location for the file by editing the resource file Ecm.

The ECM Log file gives you the following information about attributes:

- For a scheduled load, the file contains all attribute/value pairs—those that load and those that do not load successfully.

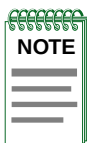
If the configuration includes a Cisco host configuration, the words `<host configuration>` appear in the Attribute list and the load status of the host configuration appears in the Error list. See [Figure 8-6](#) on Page 8-17.

- For a scheduled verification, the file contains only those attribute/value pairs that do not match. The attributes/values pairs from the configuration and the device appear in adjacent lines so that you can easily compare the two.

If the configuration includes a Cisco host configuration, the non-matching command lines of the host configuration and the device's host configuration appear adjacent to each other for comparison. See [Figure 8-7](#) on Page 8-18.

- For a scheduled capture, the file contains only those attributes that were not captured successfully.

If the Cisco host configuration was not captured successfully, the words `<host configuration>` appear in the Attribute list and the error code appears in the Error list. See [Figure 8-7](#) on Page 8-18.



After the Scheduler performs a task, ECM logs the results to the ECM Log file, appending the new entry to the other entries. As a result, this file may become very large. When you schedule automatic tasks, check the file periodically and delete old entries, if necessary.

To access the ECM Log file:

1. From the command line, navigate to the directory where the ECM Log file is located. By default the log file is called `ecmbg.log` and is located in the `<ECM directory>/log` directory.

If you cannot locate the file in the default directory, check the pathname specified in the `EcmLogFile` parameter in the resource file `ECM`. (The resource file is located in the `<SPECTRUM directory>/app-defaults` directory.)

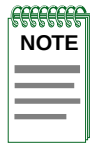
2. Open the ECM Log file by typing:

```
more <ECM Log file>
```

or

```
cat <ECM Log file>
```

An ECM Log file appears, similar to those in [Figure 8-6](#), following, and in [Figure 8-7](#) on Page 8-18.



The ECM log file is a standard text file and can also be viewed with your favorite editor.

Figure 8-6. Example ECM Log File with Two Entries

ECM Background Task Log Date: Fri 11 Jul, 1997 - 11:11:07

Load of configuration attr+host from iron to device Cisco_Rtr_2 from iron was unsuccessful

Attribute	Status
AAtest_attrib	Success
Disposable_Precedence	Attribute unwritable
If_State	Load not attempted
IsDuplicateModel	Load not attempted
<Host Configuration>	DCM device unreachable

Rollback to the original attribute values was successful.

ECM Background Task Log Date: Fri 11 Jul, 1997 - 11:15:07

Error occurred verifying configuration all_attr from iron: Capture for verify failed

Figure 8-7. Example ECM Log File With Host Configuration Information

```

ECM Background Task Log Date: Mon 24 Feb, 1997 - 10:29:23

Verify of configuration all_w_host from iron with device Cisco-dev1 from oak
was unsuccessful

    The following attributes did not match:

    AT_Net_Addr.2.1.132.171.143.107
                                Device's Value:  < No Value >
                                Config Value:      86.8D.8F.6B

    Change_Stamp
                                Device's Value:    17
                                Config Value:      15

    Device_Lost_Count
                                Device's Value:    1
                                Config Value:      8

    condition_assert_info
                                Device's Value:    0.0.0.0.9.0.1.0.8D.0.0.0
                                Config Value:      0.0.0.0.9.0.1.0.1F.1.0.0

    idleCount
                                Device's Value:    176130
                                Config Value:      175805

    <Host Configuration>
                                Device's Value      Config Value
                                enable-password ena   enable-password rtr
                                ip address 132.177.14.7.1.1  ip address 132.177.14.7.2.2

```

Cisco's Host Configuration

```

ECM Background Task Log Date: Mon 24 Feb, 1997 - 10:50:23

Capture of configuration all_attr+host from oak for device Cisco-dev1 from
acorn was unsuccessful

    Attribute                      Error

    <Host Configuration>          DCM_DEVICE_UNREACHABLE

```



Chapter 9

Using ECM with External Applications

This chapter describes how to use external applications with ECM and how to modify, turn off, or clear ECM alarms in SPECTRUM.

In This Chapter

- [*Accessing External Applications From Within ECM.*](#)

External Apps, an ECM option, allows you to create a menu of customized options. You can use these options to execute tasks or to access other applications from within ECM.

- [*Understanding and Accessing the SPECTRUM Event Log.*](#)

The **SPECTRUM Event Log**, which is accessible from SpectroGRAPH, provides users with a record of all SPECTRUM events including Enterprise Configuration Manager events. An administrator can refer to the Event Log to see what changes have been made to the network, what time the revisions were made, and who made the changes. With the **Filter** option in the Event Log, the administrator can easily perform searches and determine which configurations have been changed.

- [*Understanding and Modifying ECM Alarms in SPECTRUM.*](#)

SPECTRUM Alarms, which are visible in SpectroGRAPH, show you when an ECM load or a verification fails. By default, **SPECTRUM** generates a yellow alarm for the load failure and an orange alarm for the verification failure. This chapter shows you how to change the color of the Alarm and to turn off ECM alarms completely.

The last section of this chapter refers to two SPECTRUM applications you might want to use in conjunction with ECM: [*Using ECM with ARS Gateway*](#) and [*Using ECM with SpectroPHONE*](#).

Accessing External Applications From Within ECM

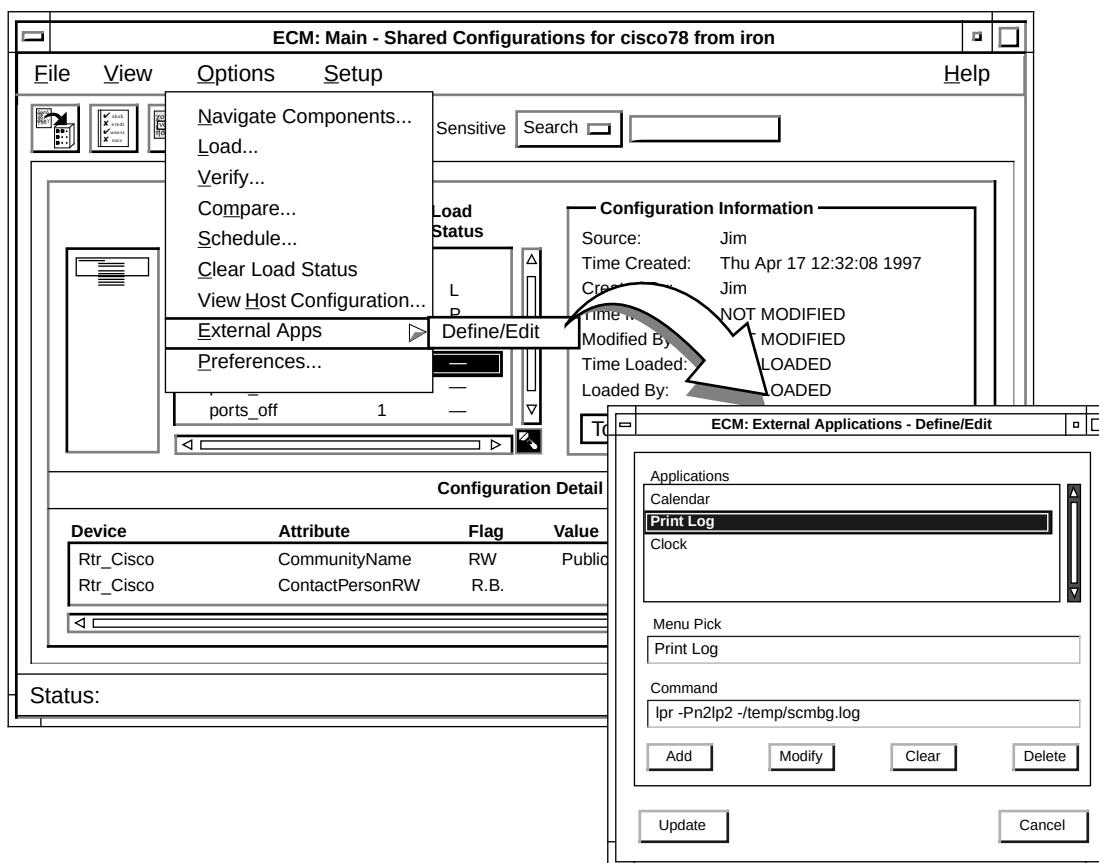
The Main window **External Apps** (Applications) option is a convenience feature. It allows you to create a submenu within ECM of those commands and applications that you use frequently.

You create the application options for the External Apps menu in the External Apps dialog box, illustrated in [Figure 9-1](#). Then, by clicking on an application name or command in the menu, you can quickly access the application or execute the command.

Define/Edit External-Applications Dialog Box

Define/Edit is the first option in the External Apps submenu. You use this first option to create or edit all the other options (entries) in the menu.

Figure 9-1. External Applications Dialog Box



Edit/Define Field and Button Descriptions

The External Applications Edit/Define dialog box contains the following fields and buttons.

Field	Description
Applications	Contains the list of menu picks that you create. When you define the Menu Pick/ Command pair and then press Add, ECM adds the information to the buffer and adds the Menu Pick temporarily to the Applications section. When you press Update, ECM saves the information permanently in the system. The menu pick then appears in the Applications section whenever you open the dialog box.
Menu Pick	Contains a menu pick. Enter the name of a menu pick in this field, then the command it will execute in the Command field. After you press Update, this menu pick will appear in the External Apps submenu.
Command	Contains the command to be executed by the name in the menu pick field. Enter the command that will be executed when you click on the related menu pick in the External Apps submenu.

Button	Description
Add	Adds the Menu Pick to the Applications section. Use Add after creating each Menu Pick/Command pair. Remember when you press Add, ECM adds the information to the temporary buffer. You still need to use Update to save information permanently.
Modify	Edits the text in the Menu Pick and Command fields. To edit these fields, click the cursor in the field, add or delete text, and then press Modify. ECM adds the new information to the buffer. When you press Update, ECM saves the information permanently.
Clear	Clears the Menu Pick and Command fields so you can enter new information.
Delete	Deletes the menu pick name that is highlighted in the Applications section. When you press Update, ECM saves this information permanently.
Update	Permanently saves the information in the buffer. Update can only work if you have used Add, Delete, or Modify to first send information to the buffer.
Cancel	Closes the dialog box, and, if you have not used Update to save information permanently, ECM prompts you to do so.

Creating Entries In the External Applications Menu

Follow these steps to create entries in the External Apps menu:

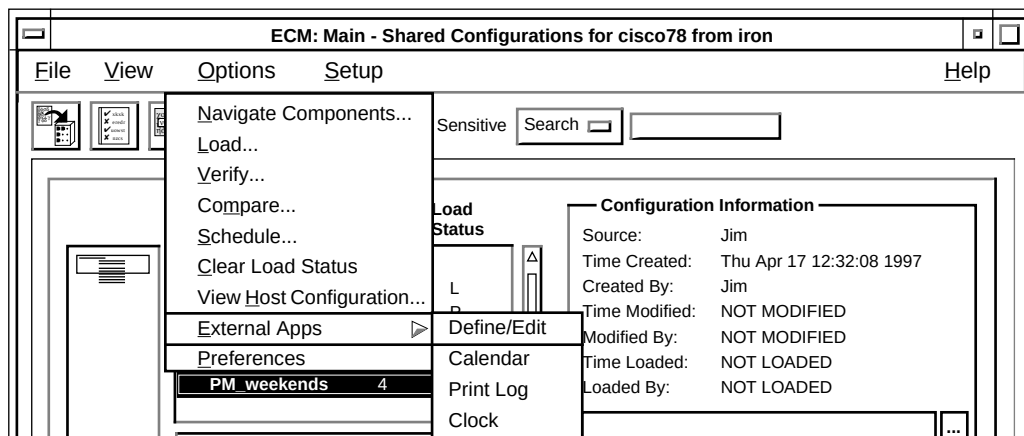
1. Open the ECM Main window.
2. In the Options menu click on **External Apps** and then the **Define, Edit** option. An External Applications dialog box appears. See [Figure 9-1](#) on Page 9-2.
3. In the **Menu Pick** field, type the name that you want to add to the External Apps submenu.
4. In the **Command** field, type the command that will be executed when you click on the above name.
5. Click on the **Add** button to send the information in both fields to the buffer.

If you change your mind and want to delete text from both fields, press the **Clear** button. Then enter new information in the two fields and press the Add button.

6. Click on the **Update** button to enter the information from the buffer to the system.
7. Click on the **Cancel** button to close the dialog box.

Cancel closes the External Apps dialog box and returns you to the ECM Main window. Check the External Apps sub-menu. You will see the menu picks that you just created. See [Figure 9-2](#).

Figure 9-2. New Entries in External Apps Menu



Editing Entries in the External Applications Menu

The following is a list of editing tasks and the procedures for accomplishing the tasks.

To Delete an Entry

1. Highlight the entry in the Applications section of the External Applications dialog box.
2. Click on the **Delete** button. Then press the **Update** button to enter information in the system.

To Modify an Entry

1. Select the entry (a menu pick or a command) in the Applications section so that the Menu Pick field and the Command field display the appropriate information.
2. Click in the field that you want to modify to insert the blinking cursor.
3. Add or delete text.
4. When finished, press the **Modify** button to add information to the buffer. Then press **Update** to enter information in the system.

To Add an Entry

1. Press the Clear button so that both the Menu Pick and Command fields are empty.
2. Enter new information in these field.
3. Press **Add**, then **Update**.

To Close the Dialog Box

1. Press the **Cancel** button. If you have not used Update to save information, ECM asks you if you want to discard the modifications.
2. Click on **No**. Then save the information by clicking on the **Update** button.

Understanding and Accessing the SPECTRUM Event Log

SPECTRUM maintains a log of events that occur on the network. These events can range from routine ones (such as who establishes a session with SPECTRUM) to critical ones (such as the change in status of a configuration). Network administrators should check the SPECTRUM Event Log to track changes to network configurations.

ECM Event Information

ECM event descriptions in the SPECTRUM Event Log contain the following:

- The time and date of the ECM event.
- The words “Configuration Manager” after the date and time.
- The task that was performed—for example: load, capture, verify, create, modify, delete.
- Whether or not the task was successful.
- The name of the user who performed the task.
- The names of configurations, templates, devices, and device types, when appropriate, and the landscapes where they are located.
- The event code number identifying the type of ECM task performed.

How to Use the Event Log

The SPECTRUM Event Log provides administrators with not only a history of events that occurred on the network but also with data that can be used to manage the network. Here are a few ways to use the SPECTRUM Event Log with ECM:

- The Event Log filter enables you to perform searches of the Event Log. If you schedule automatic verifications of configurations, you can then use the Event Log filter to search for Event00820007 (verification failure). This is a quick way to see which configurations have changed — refer to [Interpreting ECM Event Code Numbers](#), starting on Page 9-8.
- You can also key the Event Log search to a model name, model type name, and user name to find information about a specific model, model type, or user.
- You can scroll to a specific time in the Event Log and see what events took place at that particular time.

This manual does not include detailed instructions about the SPECTRUM Event Log. See the ***SPECTRUM System User's Guide*** for details.

Accessing the SPECTRUM Event Log

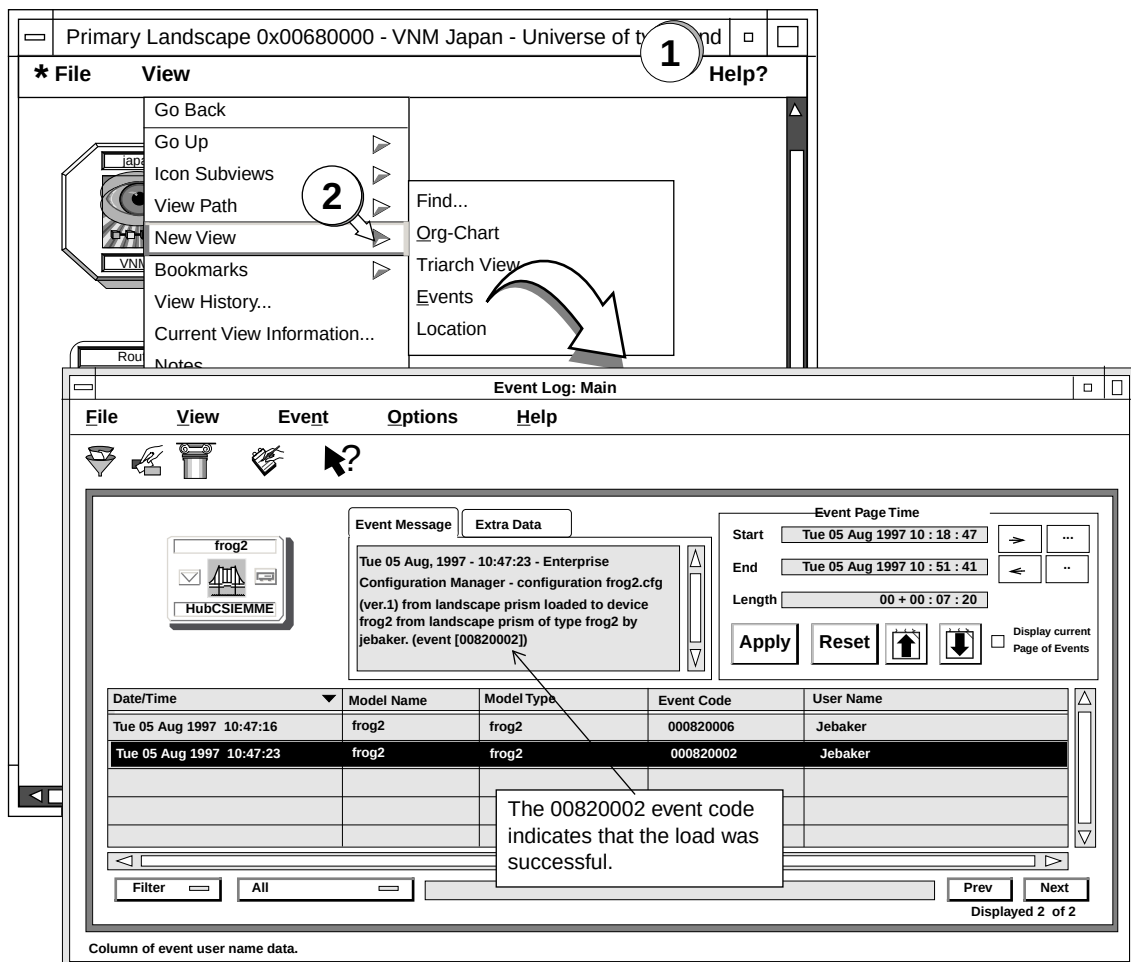
To access the SPECTRUM Event Log:

1. Open SpectroGRAPH to any View window — Topology View, DevTop View, for example.
2. In the View menu select **New View, Events**.

The SPECTRUM Event Log appears. See [Figure 9-3](#).

You can identify ECM events because the words “Configuration Manager” appear after the date and time. Notice that every entry in the SPECTRUM Event Log has an event code number. See the following section for a listing of ECM event code numbers.

Figure 9-3. Accessing the Event Log



Interpreting ECM Event Code Numbers

Every entry in the Event Log ends with an event code number that identifies the operation performed. ECM event codes also indicate the success or failure of the operation. Use these ECM event code numbers when you perform searches in the SPECTRUM Event Log.

Event Codes	Type of ECM Event
Event00820000	Configuration created.
Event00820001	Creation of configuration failed.
Event00820002	Configuration loaded to a device.
Event00820003	Load of the configuration failed.
Event00820004	Configuration captured from a device.
Event00820005	Capture of configuration failed.
Event00820006	Configuration verified.
Event00820007	Verification of configuration failed.
Event00820008	Configuration modified.
Event00820009	Modification of configuration failed.
Event0082000a	Configuration deleted.
Event0082000b	Deletion of configuration failed.
Event0082000c	Template created.
Event0082000d	Creation of template failed.
Event0082000e	Template modified.
Event0082000f	Modification of template failed.
Event00820010	Template deleted.
Event00820011	Deletion of template failed.

Understanding and Modifying ECM Alarms in SPECTRUM

ECM Events that Trigger Alarms in SPECTRUM

Two events in ECM trigger alarms in SpectroGRAPH:

- Load Failure (Event Code 00820003).
- Verify Failure (Event Code 00820007).

How SPECTRUM Notifies You of an ECM Alarm

When an ECM load or verification fails, SPECTRUM notifies you in the following ways:

- In the Topology View, the icon of the model displays an orange alarm for a Verify Failure or yellow alarm for a Load Failure.
- The Alarms window displays an alarm entry for the ECM alarm.
- The Event Log displays two entries for each alarm, one for the event of Load Failure or Verify Failure and one for the event of generating an alarm.

How to Modify, Turn off, or Clear ECM Alarms

ECM alarm features are added to SPECTRUM when you install ECM. Although you cannot change the types of alarms that are generated, you can modify the color of the alarm, turn off the alarms altogether, or clear them.

To modify colors or turn off ECM alarms:

1. Navigate to the /SS/CsVendor/Ctron_ECM directory in your SPECTRUM directory.
2. Open the EventDisp file with a text editor and locate the following lines, which generate alarms for Load Failure and Verify Failure:

```
0x00820003 E 50 A 1, 0x820003
0x00820007 E 50 A 2, 0x820007
```

- To turn off one or both alarms, delete the appropriate line(s) from the file:

```
0x820003 generates the alarm for Load Failure.
0x80007 generates the alarm for Verification Failure.
```

- To change the color of an alarm, change the number that follows the **A** and precedes the comma. The choices you have are:

```
1 - YELLOW CONDITION
2 - ORANGE CONDITION
3 - RED CONDITION
```

3. After you have modified the EventDisp file, bring down SpectroSERVER and start it up again. The SpectroGRAPH will then display the modified ECM alarms.

To clear an alarm:

1. Select the alarm in the Alarms window.
2. Click on the Clear option under the Tools menu.

See the **SPECTRUM System Administrator's Guide** for more information about alarms.

Using ECM with ARS Gateway

ECM can also be used in conjunction with the SPECTRUM ARS Gateway and Remedy's Action Request System (ARS). ECM generates alarms in SPECTRUM whenever a load failure or verification failure occurs. Therefore, users who have the ARS Gateway and Remedy ARS on their system can have trouble tickets generated whenever these ECM alarms occur.

For more details, see the **SPECTRUM ARS Gateway User's Guide**.

Using ECM with SpectroPHONE

ECM can also be used with SpectroPHONE. If users have SpectroPHONE on their system, they can specify that ECM alarms generate phone messages to the appropriate troubleshooters whenever an ECM alarm occurs.

For more details, see the **SpectroPHONE User's Guide**.



Chapter 10

Examples of Ways to Use ECM

This appendix shows you specific ways to use ECM to configure network devices. The procedures in these examples assume you are familiar with basic ECM operations such as creating, saving, and loading configurations.

In this Chapter

- [How to Download Firmware](#)
How to download firmware, using first a MicroMMAC and then using Cisco routers as examples.
- [How to Configure Ports](#)
How to configure ports, using a CSIRptr as an example.
- [How to Change Community Names](#)
How to change community names, using an EMME as an example.
- [How to Turn Interfaces or Channels On and Off](#)
How to turn interfaces or channels on and off, using an EMME as an example.
- [How to Turn Cisco Router Protocols On and Off](#)
The procedure for turning protocols on and off on a Cisco router.

Although these examples show you how to load configurations to one device, you can easily follow the same instructions for multiple devices. One of the benefits of ECM is that it allows you to load a configuration to any number of devices simultaneously. If you want to configure multiple devices, create the configurations as described and follow the instructions for configuring multiple devices as described in [Chapter 4](#).

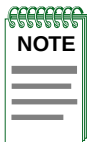
You can also perform these tasks automatically with the ECM Scheduler. Just create the configurations as described and then schedule the task in the Scheduler. The Scheduler performs the operation at the time and frequency specified.

How to Download Firmware

ECM does not provide a direct GUI level support for downloading firmware to devices. But what ECM provides is a very rich and flexible interface for creating and downloading of customized configurations. Users can use these customized configurations to do firmware download on most types of devices.

Downloading Firmware to a Cabletron MicroMMAC

This section shows you how to download firmware to the MicroMMAC.



The following example download procedure should work for device types other than that used in this example. However, ECM allows you to download firmware only to a device that supports the download feature and the configuration attributes for downloading firmware may differ for different devices.

When downloading to a different type of device, check with your device documentation or support person to make sure you select the appropriate attributes for that device.

Requirement

To download firmware, you need to first set up your SpectroGRAPH workstation as an TFTP Server.

ECM uses TFTP to download an image file from your local workstation to a device. Therefore, before you begin these procedures, make sure TFTP is set up and running on the machine that also has SpectroGRAPH running on it.

Procedure

When your machine is set up as a TFTP server, you can download firmware. Follow these steps to download firmware to a MicroMMAC.

Step 1: Get Image file

Place the image file in the **/tftpboot** directory on the machine that is running SpectroGRAPH.

Step 2: Select Device and Open ECM

In SpectroGRAPH, select the appropriate device icon — in this example, a MicroMMAC — and invoke ECM from it:

1. Open a View window in SpectroGRAPH.
2. Select the device you want to work with. When selected the border of the device is highlighted.
3. Invoke ECM.

To do so: place the cursor on the device and press the right mouse button to display the **Icon Subview** menu. Then select **Utilities/EnterpriseConfigManager**.

Step 3: Create Configuration

Create a configuration and give it a name, for example: flashmicrommac.

When completed, the configuration (which resides in the Download App component) should have the following attributes and values:

Attribute	Value
ctDLCommitRAMToFlash	1
ctDLTFTPRequestHost	< IP address of the workstation (that has the downloadable file) >
ctDLTFTPRequest	< image file name of the downloadable file converted from ASCII to hex >
ctDLForceOnBoot	1
ctDLInitiateColdBoot	1

To create the preceding configuration file:

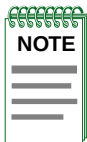
1. From the ECM Main Menu bar, select **Options/Navigate Components....**
2. From the Component's window, scroll to and select **Download App** and click on OK (or Apply and then Cancel). The subcomponent's window disappears.
3. From the ECM Main Menu bar, select **Setup/Configurations....**
4. From the Configurations Menu bar, select **File/New** or select the new file button.



This opens a new unnamed file called <untitled> in your display window.

5. From the Configurations Menu bar, select **View/Sort-By-Sequence** to ensure the proper ordering of the attributes in the configuration.
6. One at a time, select each of the following attributes and click on the **Add** button after each selection to put them in your new configuration file:

```
ctDLCommitRAMToFlash  
ctDLTFTPRequestHost  
ctDLTFTPRequest  
ctDLForceOnBoot  
ctDLInitiateColdBoot
```



The attribute, ctDLInitiateColdBoot, must be last.

7. Edit the values of each of the attributes to be those indicated at the beginning of [Step 3: Create Configuration](#):
 - a. Select ctDLCommitRAMToFlash in the Selected Attributes list box, enter **1** in the Value text box at the bottom of the screen, and click on the **Update** button.
 - b. Select ctDLTFTPRequestHost, enter the IP address of your workstation in the Value text box and click on **Update**. This tells the device the location of the file to download.
 - c. Select ctDLTFTPRequest. This changes the Value: prompt at the bottom of the screen to the Value button. Click on the **Value** button to display the Convert window.

In the Convert window's *Converted Attribute Value* text box at top of window, enter the name of the image file to download (in this case, **emme_dl.hex**), and click on OK (or Apply and then Cancel). In the Value text box, the hex code for the file name will appear.

Click on **Update**.

- d. Select the last two attributes (ctDLForceOnBoot and ctDLInitiateColdBoot) and for each, enter *1* in the value text box, and click on **Update**.
8. From the Configurations Menu bar, select **File/Save As....** At the prompt, enter the name (for example, flashmicrommac), click on OK and then OK again at the confirmation prompt. This saves the new configuration file with the given name, attributes, and edited values.

9. From the Configurations Menu bar, select **File/Close** to close the Configurations window.

Step 4: Load Configuration

1. In the ECM Main window, select the configuration and click on the **Options/Load** option from the menu bar or the first button, the load button  in the button bar.

ECM loads the configuration to the device you selected and displays a Load Results window saying “*DownLoad App Fully Loaded.*”

If you get a message saying that the load failed, click on the Results Detail button. You should get a message saying that the load was not attempted, if you had safe load (the default) selected. If this is the case, find out what the problem is, fix it, and try the load again. The load should work.

2. Click on **File/Close** to close the Load Results window.

This starts the download process which the device (to which you downloaded the new firmware) continues by rebooting.

Step 5: Check Status

If there is terminal screen attached to the device, you should see the new firmware file name displayed after it reboots. You can also verify that the configuration file is on the that device by doing the verification procedure described in Chapter 6 of the ECM User's Guide.

As long as you have done this once, you can easily download an image file a second time to this device. You do not have to perform Steps 4 and 5 again unless you change the image file name or switch devices.

Downloading Firmware to Cisco Routers

This approach works by creating and downloading a configuration that creates an appropriate entry in the ciscoFlashCopyTable of the CISCO-FLASH-MIB. Activation of this entry initiates the TFTP download of the image.

Requirements

Before you attempt this procedure, please read the following requirements and make sure you have them **all**:

- ECM 5.0
Needs ECM features that were added only with Spectrum 5.0.
- Cisco IOS 10.2+
Cisco devices running IOS 10.2 or higher (needs the new CISCO-FLASH-MIB).
- Read/Write community string
The corresponding Cisco models in Spectrum should be created with the read/write SNMP community string.
- TFTP server
A TFTP server running. This server should have a copy of the image that you are trying to download. For more information, refer to the procedures for making your workstation a TFTP server in the section [Installation Procedures Required by Cisco Routers](#) in Appendix A.

Limitation

Since the downloading is done by loading a configuration, this approach lacks the functionality to report the final status of the download operation. However, the final result is available in another MIB object (`ciscoFlashCopyStatus`) of this table (see [Step 5: Check Status](#) below).

Procedure

Step 1: Get Image File

Place the image file in the `/tftpboot` directory on the machine that is running SpectroGRAPH.

Step 2: Select Device and Open ECM

In SpectroGRAPH, select the appropriate device icon — in this example, a MicroMMAC — and invoke ECM from it:

1. Open a View window in SpectroGRAPH.
2. Select the device you want to work with. When selected the border of the device is highlighted.

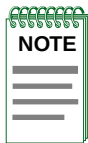
3. Invoke ECM.

To do so: place the cursor on the device and press the right mouse button to display the **Icon Subview** menu. Then select **Utilities/EnterpriseConfigManager**.

Step 3: Create Configuration

You need to create a configuration, the loading of which will create an appropriate entry in the `ciscoFlashCopyTable`.

To create an entry in this table, you need to first generate a pseudo-random serial number to be used as the index to this sparse table. The following example configuration is using 52052 as the index, but you can choose any number as long as you are sure that no one else is using that number.



Entries from this table are automatically aged out by the router. So chances of your number being the same as someone else's are very rare.

- a. Chose **View->Sort-By-Sequence** from the menubar to ensure the proper ordering of the attributes in the configuration.
- b. Create a new configuration with details shown in [Table 10-1](#). The attributes should be added in the order given in the table.

Table 10-1. Configuration Details

Attribute	Instance ID	Value	Description
<code>ciscoFlashCopyEntryStatus</code>	52052	5	To create an entry in CreateAndWait(5) mode
<code>ciscoFlashCopyCommand</code>	52052	1	Supported commands are: <code>copyToFlashWithErase(1)</code> , <code>copyToFlashWithoutErase(2)</code> , <code>copyFromFlash(3)</code> , and <code>copyFromFlhLog(4)</code>
<code>ciscoFlashCopyServerAddress</code>	52052	<ip-addr>	The IP Address of the TFTP Server where the firmware image resides. If its your own w/s, enter your workstation's IP address and make sure that TFTP daemon is enabled for your w/s.

Attribute (Continued)	Instance ID	Value	Description
ciscoFlashCopySourceName	52052	<file_name>	The filename of the firmware image that needs to be downloaded.
ciscoFlashCopyEntryStatus	52052	1	To Activate(1) this entry.

- c. Chose a name (for example, ToFlashWErase) for this configuration and save it.



- For uploading (that is, from the device to the TFTP server) of firmware, the only thing you need to change in the preceding configuration is the value of the attribute `ciscoFlashCopyCommand` to **3**. Make sure that a file exists under `/tftpboot` directory on the TFTP server with the same name as that of the image you are trying to upload and with **RW** permissions for **Others**.
- There are a few other MIB objects in the `ciscoFlashCopyTable` that a network administrator could make use of, both for upload as well as download. See the CISCO-FLASH-MIB definitions for more details. These definitions can be found on the WEB at <http://cio.cisco.com/public/mibs/v1/CISCO-FLASH-MIB-V1SMI.my>.

The next step is loading this configuration on to the desired Cisco devices.

Step 4: Load Configuration

While loading, make sure that both of the following options are de-selected:

- Rollback on Load Failure.
- Store Device Configuration Before Load.

Otherwise the load operation will fail. This is an action-oriented configuration. Hence the *Rollback*, *Safe Load*, and *Store Device Configuration before Load* options are not going to work.

Step 5: Check Status

As mentioned under the *Limitation* section above, with this approach there is no easy way to monitor the status of the download operation. One round about way is to make a template with the relevant status attributes from the `ciscoFlashCopyTable` table. These attributes are `ciscoFlashCopyStatus` and `ciscoFlashCopyTime`.

To do this:

- a. Use the same index that was used in the configuration.
- b. Capture with this template periodically. Since these entries are aged out automatically from this table by the routers, make sure that you capture this template before the entries are aged out. Refer to the MIB for the details of aging.

Another possibility is to use the Cisco MM in Spectrum to get the status:

- a. Go to the CiscoFlashApp Application model for a Cisco router.
- b. Bring up the *Copy Operations* view and click on the **Update** button. This tells you the latest status of the copy operations on that router.



Once again, keep in mind that the copy entry from the table is automatically deleted by the router after about 5 minutes.

How to Configure Ports

ECM enables you to quickly turn ports off and on. The procedures in this section show you how to configure ports on an MRXIRptr. The example assumes that the MRXIRptr is located in slot 2 of a hub and that the ports are all on.

1. In SpectroGRAPH, select an icon of a hub that contains an MRXIRptr and invoke ECM from it.
2. Navigate to the specific component that you want to work with—in this case, an MRXIRptr. Follow these steps:
 - a. In the ECM Main window, click on **Navigate Components** in the Options menu. This opens the Components dialog box.
 - b. Scroll down through the list of components in the Components dialog box, select the MRXIRptr, and click on **Apply**.
 - c. Close the Components window.

The ECM Main window now displays all the configurations that are available to the MRXIRptr.

- d. Open the Configurations window.

3. In the Configurations window, manually create a configuration called **Ports1_2_OFF**. When completed, the configuration should have the following attributes, instance IDs, and values:

Attribute	Value
rpPtrPortMgmtAdminState 2.1	1
rpPtrPortMgmtAdminState 2.2	1
rpPtrPortMgmtAdminState 2.3	2
rpPtrPortMgmtAdminState 2.4	2
.	.
.	.
.	.

The instance IDs (2.1,2.2, 2.3,2.4...) indicate that this board is located in slot 2 and that there are 4+ ports on the board.

For this particular attribute, a value of 1 means OFF, a value of 2 means ON. Therefore, this configuration will turn ports 1 and 2 *off* and ports 3 and 4 *on*.

4. In the Main window, select the configuration **Ports1_2_OFF** and click on **Load**.

ECM loads the configuration to the MRXiRptr.



Other devices may have different attributes to configure ports. For example, the value 1 does not always mean OFF. Make sure you select the appropriate attributes for the device type that you are working with.

How to Change Community Names

ECM enables you to set or change the community name for a device. The procedures in this section, show you how to change the community name of an EMME from “Public” to “HP_Lan.”

1. In SpectroGRAPH, select an EMME icon and invoke ECM from it.
2. Manually create a configuration called **NewCN**. The completed configuration should contain the following attribute and value:

Attribute	Value
Community_Name	HP_Lan

3. In the ECM Main window, select the configuration **NewCN** and click on **Load**. ECM loads the configuration to the EMME you selected.

Remember that when you change the Community_Name attribute in ECM, you also need to change the SNMP community name on the device, itself.

How to Turn Interfaces or Channels On and Off

ECM allows you to turn on or off the interfaces on a device. The procedures in this section, show you how to create a configuration that turns *on* interface 1 and turns *off* interfaces 2 and 3 on an EMME.

1. In SpectroGRAPH, select an EMME icon and invoke ECM from it.
2. Manually create a configuration called **Interface1_ON**. The completed configuration should contain the following attributes and values:

Attribute	Value
If_Admin_Status.1	1
If_Admin_Status.2	2
If_Admin_Status.3	2

For this particular attribute, a value of 1 means ON, a value of 2 means OFF. (If you want to turn other interfaces on or off, just change the value of the interface and name the configuration appropriately.)

3. In the ECM Main window, select the configuration and click on **Load**.

ECM loads the configuration to the EMME. If you keep the Device View open, you can see the appropriate interfaces turn green (on) or blue (off) when you download the configuration.

How to Turn Cisco Router Protocols On and Off

Instead of telneting to a Cisco router and manually entering host configuration commands, you can use ECM to configure the router. If you want to schedule a Cisco router to run different protocols at different times of the day, enter actual Cisco commands, such as **no appletalk routing** and **novell routing**, in the Cisco host configuration and then use the Scheduler to load this configuration to the router at the desired times.

To turn off the Appletalk protocol and turn on Novell routing in a Cisco router:

1. Select a Cisco router icon in SpectroGRAPH and invoke ECM from it.
2. Create a configuration called **appleOFFnovON**. This configuration doesn't need to include any attributes, only the Cisco host configuration.
3. In the Edit Host Configuration window, edit the host configuration by inserting the command **no appletalk routing** and **novell routing**.
4. In the ECM Main window, select the configuration **appleOFFnovON**, click on the **Scheduler** button, and then schedule the load for a specific time.

ECM loads the configuration to the Cisco router at the scheduled time(s)



Appendix A

Installation/Deinstallation

This appendix describes the procedures for installing Enterprise Configuration Manager. The appendix also includes additional installation procedures required for managing Cisco routers.

In This Chapter

- [*About the Installation Process*](#)
A brief description of the installation process
- [*Custom or Auto Installation?*](#)
A list of defaults you can modify if you choose custom installation
- [*Installation Procedure*](#)
The installation procedure steps
- [*Deinstallation*](#)
How to remove ECM from your system
- [*How to Manually Remove ECM Models*](#)
How to remove ECM files if the SpectroSERVER is not running.
- [*Schedule Service Requirements for NT*](#)
Schedule Service setup needed to schedule ECM operations on NT
- [*Installation Procedures Required by Cisco Routers*](#)
Additional installation steps required by Cisco routers

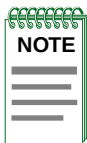
About the Installation Process

Enterprise Configuration Manager is installed with the program **Install**. During the installation process you will have to answer prompts in various dialog boxes.

After you type the **./Install** command, these are some of the dialog boxes that appear:

- The SpectroINSTALL dialog box — which prompts you to confirm the installation.
- The Host Evaluation dialog box — which shows whether your system has the resources necessary for running Enterprise Configuration Manager.
- The Installation Configuration dialog box — which allows you to specify, among other choices, whether you want a “custom” or “auto” installation.
- The Installation Monitor dialog box — which displays the status of the installation process and finally indicates that the installation is complete.

During the installation process you will also see other message boxes prompting you for information that is specific to your particular installation. Click on the appropriate buttons in these boxes.



If you have SpectroGRAPH and SpectroSERVER on different machines, you need to perform two installations so that you install the appropriate ECM component on each machine. You specify the component that is required for each machine in the Installation Configuration dialog box.

Custom or Auto Installation?

Before you begin the installation, determine whether you should perform a custom or auto installation. A custom installation allows you to modify the following defaults during the installation process:

- Should Load operations be performed with Safe Load on? = Yes
- Should ECM store (save) a backup device configuration before performing a Safe Load? = Yes
- Should ECM display device-specific (instead of shared) configurations first? = Yes
- Should the Save operation create a new template/configuration with a new version number instead of overwriting the existing template/configuration? = Yes
- Should the configurations/templates in a landscape be displayed in an expanded format? = Yes
- SpectroSERVER timeout value = 100000
- The timeout interval for SpectroSERVER to establish a connection = 20 seconds

If you are installing only the SG component of ECM:

- Landscape used for locating configurations and templates, for saving configurations and templates, and for locating device models = 0x400000

If you are installing both the SS and SG component of ECM:

- Landscape used for locating configurations and templates, for saving configurations and templates, and for locating device models = your local landscape

During the installation process, you specify the type of installation by either selecting or not selecting the **Enable custom script prompting** option in the Installation Configuration dialog box. (See [Figure A-1.](#))



You can also change the default settings after ECM is installed. The ECM Preferences dialog box allows you to define the Safe Load, Save, and display settings for the current session. If you want to change the default settings permanently, you have to modify the ECM resource file **Ecm**. See [Appendix B.](#)

Installation Procedure

Do the following procedure to perform either an auto or a custom installation of Enterprise Configuration Manager. If you have SpectroGRAPH and SpectroSERVER on different machines, install ECM on both machines. Specify the ECM component (SG or SS) that you are installing in Step 6.

1. Before you install ECM, install SPECTRUM according to the instructions in the SPECTRUM Installation Guide.
2. Log on to the workstation and become root (superuser).
3. Insert the CD and start the installation using the procedures in the **SPECTRUM Installation Guide**.

A SpectroINSTALL dialog box asks you to confirm the installation.

4. In the SpectroINSTALL dialog box, press the **OK** button to continue with the installation.

Install evaluates your system resources and displays the results in a Host Evaluation dialog box.

5. If your system resources are adequate, press the **OK** button in the Host Evaluation dialog box.

An Installation Configuration dialog box appears. See [Figure A-1](#).

Figure A-1. Installation Configuration Dialog Box

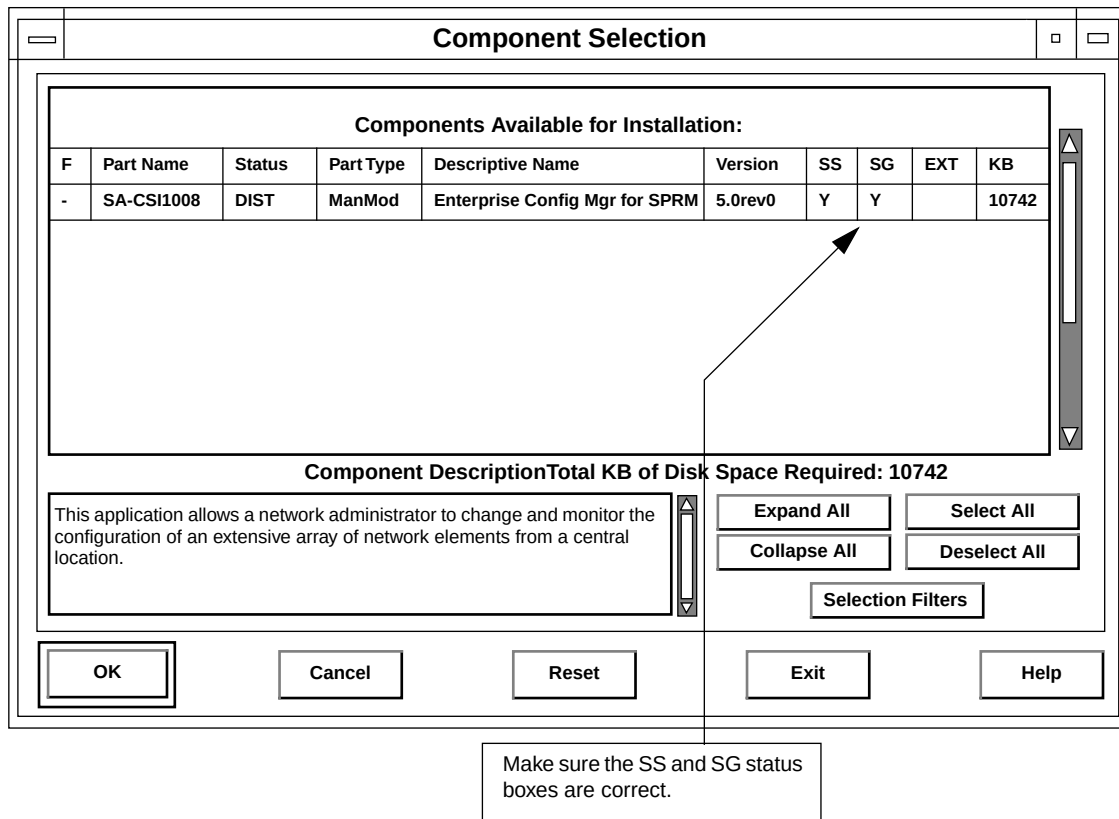
The dialog box is titled "molasses: Installation Configuration". It contains several sections for configuring the installation:

- Installation Type Choices:** Includes three options: ☒ Install, ☐ Re-link previously installed components, and ☐ Validate previously installed SpectroSERVER.
- Location Configuration:** Includes text boxes for Source Directory (/cdrom/Install), Target Directory (japan:/usr/data/Spectrum/5.0), and Target Ownership (Smith).
- Component Configuration:** Includes checkboxes for ☐ Select all SpectroSERVER components, ☒ Select all SpectroGRAPH components, and ☐ Select all external applications. It also shows "Total Disk Space Required: 13805 KB" and an ☒ Enable custom script prompting option. A callout box points to the "Select all SpectroGRAPH components" checkbox with the text: "Click on **Select all SpectroGRAPH components** for both custom and auto install." Another callout box points to the "Enable custom script prompting" checkbox with the text: "Select the **Enable custom script prompting** option if you want a custom install." A button labeled "Select Individual Components" is also present.
- Windowing System Paths:** Includes text boxes for Lib Path (/user/openwin/lib) and Toolkit Lib Path (/user/dt/lib).

At the bottom of the dialog are five buttons: Start, Reset, Cancel, Exit, and Help.

6. Enter the appropriate information in the Installation Configuration dialog box. The fields change depending on your selections.
 - a. In the Component Configuration section, notice that the two options, **Select all SpectroSERVER components** and **Select all SpectroGRAPH components**, are already selected. Select the component that you want to install as follows:
 - If you have both SpectroSERVER and SpectroGRAPH on your machine, make sure the two options remain selected.
 - If you have only SpectroSERVER on your machine, deselect the SG component and leave the SS component, **Select all SpectroSERVER components**, selected.
 - If you have only SpectroGRAPH on your machine, deselect the SS component and leave the SG component, **Select all SpectroGRAPH components**, selected.
 - b. In the Component Configuration section specify whether you want an auto or custom install.
 - For an auto install, do *not* select the **Enable custom script prompting** option.
 - For a custom install, select the **Enable custom script prompting** option.
7. When you have entered the required information in the Installation Configuration dialog box, click on the **Select Individual Components** button.

A Component Selection dialog box appears.

Figure A-2. Component Selection Dialog Box

8. Check the SS and SG status boxes in the Component Selection dialog box to make sure that the correct ECM component information is in the boxes. The letter **Y** should be under the component(s) that you are installing.

If the status is not correct, change the **N** to **Y** or vice versa by clicking in the box.

9. Then click on **OK** in the Component Selection dialog box.

When you click on OK, you are returned to the Installation Configuration dialog box. See [Figure A-1](#).

10. In the Installation Configuration dialog box, click on the **Start** button.

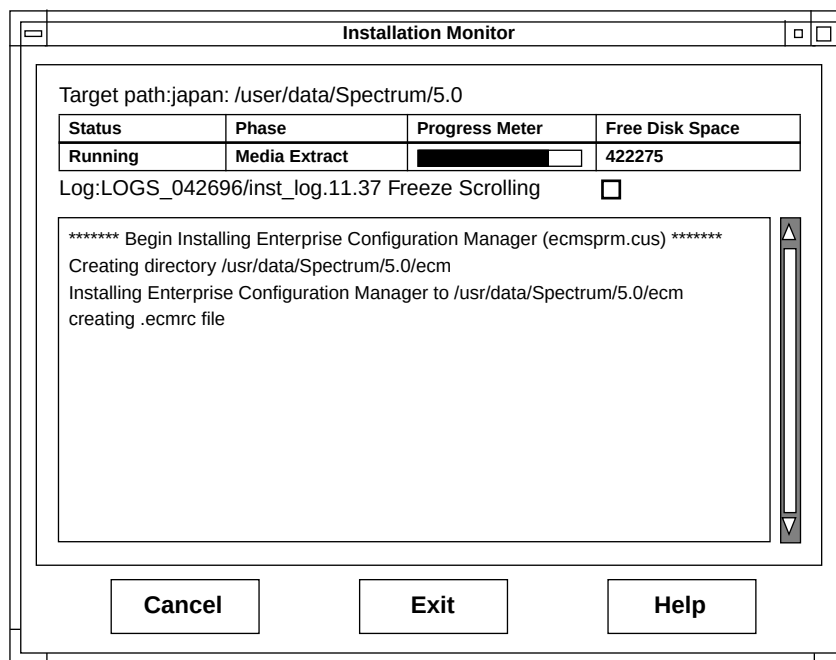
After you click the Start button, a Main Location Server dialog box appears.

11. At the prompt, enter the host name of the Main Location server and then click on OK.

To set up the machine you are using as the Main Location Server, enter the current host name.

After you click on OK, an Installation Monitor dialog box next appears. See [Figure A-3](#). The Progress Meter in the Installation Monitor shows you how much of the installation has taken place.

Figure A-3. Installation Monitor Dialog Box



12. If you did *not* select **Enable custom script prompting**, **Install** completes the installation. You should now skip to Step [13](#).

If you *did* select **Enable custom script prompting**, a Custom Prompt window, similar to that shown in [Figure A-4](#), appears in front of the Installation Monitor dialog box.

Answer the custom install prompts.

- Type **y** if the default answer is correct.
- Type **n** if it is not. If you type **n**, **Install** asks you to enter the correct answer.

After you answer all of the custom prompts, **Install** completes the installation. The Custom Prompt screen disappears and the Installation Monitor is again visible.

Figure A-4. ECM Custom Installation Prompts

```

***** Begin Installing Enterprise Configuration Manager (ecmsprm.cus) *****

Installing Enterprise Configuration Manager to /usr/data/Spectrum/5.0/ecm
  Is "mm/dd/yyyy" the correct Expiration Date (y/n) ? n
    Please Enter Expiration Date: 06/27/1997
  Is "06/27/1997" the correct Expiration Date (y/n) ? y
  Is "prodKey" the correct Activation Key (y/n) ? n
    Please Enter Activation Key: bd1eae3
  Is "dbd1eae3" the correct Activation Key (y/n) ? y
Modifying .ecmrc ...
  Is "100000" the correct minimum time to wait for a response from SpectroSERVER
  (in milliseconds) (y/n) ? y
  Is "20" the correct maximum time to wait for SpectroSERVER to establish a
  connection (in seconds) (y/n) ? y
Creating directory /usr/data/Spectrum/5.0/ecm/log
  Do you want to perform Load operations as Safe Load (y/n) ? y
  Do you want to store device configurations before performing Load operations (y/
  n) ? y
  Do you want to display device specific configurations first (y/n) ? y
  Do you want the 'Save' operation to create new templates/configurations (y/n)? y
  Do you wish to access multiple landscapes in your network (y/n) ? y
Create Landscape:
  the landscape handle on which you will create and save new Configurations and
  Templates
  Is "0x400000" the correct Create Landscape handle (y/n) ? y
Find Landscapes:
  you may define a group of landscapes from which Configurations and Templates can
  be expanded automatically based on the Automatically Expand Preferred Landscapes
  flag
  Do you wish to specify Find Landscapes [0x400000] (y/n) ? y
  Please Enter each landscape handle separated by a comma (e.g. 0x680000):
  0x680000
  Is "0x680000" the correct landscapes list (y/n) ? y
Other Devices Landscapes:
  you may define a group of landscapes from which Devices can be expanded
  automatically from Manage Other Devices window based on the Automatically Expand
  Preferred Landscapes flag
  Do you wish to specify Other Devices Landscapes [0x680000] (y/n) ? n
Automatically Expand Preferred Landscapes:
  this flag will allow Find Landscapes and Other Devices Landscapes expansion
  automatically in the appropriate windows
  Do you want to choose to Automatically Expand Preferred Landscapes (y/n) ? y

Custom script SG ecm.cus successful

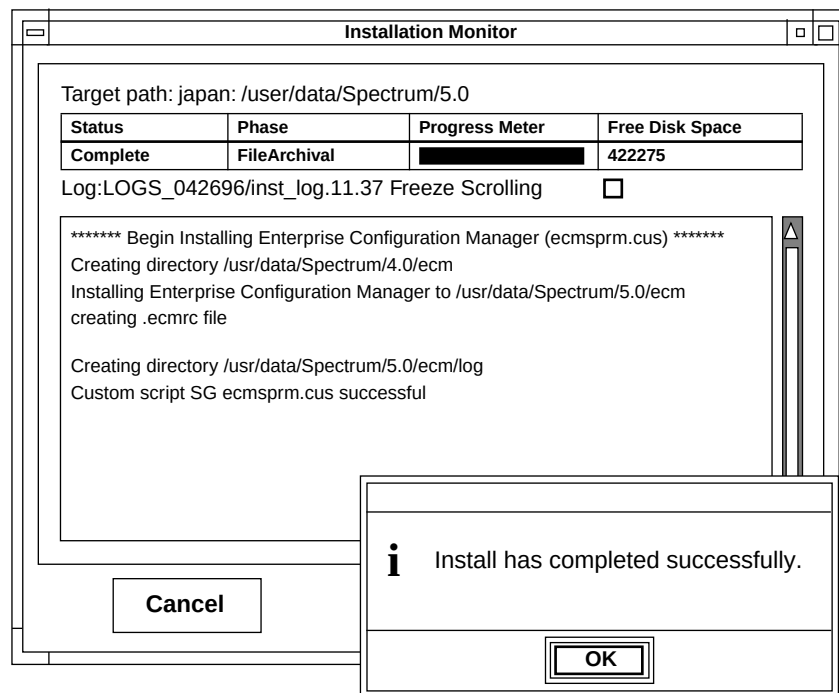
```

In the Installation Monitor, the Status field and the Progress Meter now indicate that the installation has been completed. A message box also appears saying, “Install has completed successfully.”

13. Click **OK** in the message box.

14. Close the Installation Monitor dialog box by clicking on the **Exit** button.

Figure A-5. Installation Monitor and Install Completed Message Box



Deinstallation

When you install Enterprise Configuration Manager, **Install** deinstalls any previous version of ECM. Therefore, you do not need to perform a deinstallation before you install the application.

However, if you just want to remove ECM from your workstation (that is, perform a stand-alone deinstallation), use the following procedure:

1. Log on as root to the workstation where SpectroGRAPH is installed.
2. Make sure SpectroSERVER is up and running—even if SpectroSERVER is on another machine.

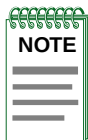
(If you cannot run SpectroSERVER, you will have to perform additional procedures described in the section [How to Manually Remove ECM Models](#).)

3. Use the **cd** command to navigate to the SPECTRUM directory. (It is important that you run the deinstall from this directory so that pathnames are correct.)
4. Run the deinstallation script by typing:

```
<SPECTRUM_directory/ECM>/deinstall/deinstall
```

When you type this command, **deinstall** begins the deinstallation by removing the files that make up the ECM SpectroGRAPH component.

5. Answer the prompts in the deinstallation script.



The deinstallation script does not remove the two ECM model types, ScmConfig and ScmTemplates, which are a part of the SPECTRUM database.

How to Manually Remove ECM Models

If you perform a deinstallation and SpectroSERVER is not running, you can remove the ECM models manually. Follow these steps:

1. If you are not already on the machine where SpectroSERVER is located, log on as root to this machine.
2. Navigate to the SS-Tools directory by typing:

```
cd /<SPECTRUM directory>/SS-Tools
```

3. Then type:

```
rm_ecm_models -vnm <SpectroSERVER host name>\
-lh <VNM landscape handle>\
-port <VNM socket number>\
[-time <timeout value>]
```

The deinstallation utility removes all the ECM models. Then it notifies you that the deinstallation is complete with the message, “Enterprise Configuration Manager has been de-installed.”

4. After this manual deinstallation, remove the **rm_ecm_models** utility, itself. In the SS-Tools directory, type:

```
rm rm_ecm_models
```

5. To remove ECM models from other VNMs, repeat steps [1-4](#) for each VNM.

You have now removed all Enterprise Configuration Manager files.

Schedule Service Requirements for NT

Because NT utilizes the Schedule Service (instead of the **cron** utility) to schedule ECM operations, NT users should make sure the Schedule Service is set up properly before scheduling tasks. The setup requirements are described in Chapter 8, [Scheduling Tasks](#). Be sure to refer to this information when you are setting up ECM on your NT system.

Installation Procedures Required by Cisco Routers

If you are planning to work with Cisco routers, you must perform additional steps after you install the Enterprise Configuration Manager. Cisco routers use TFTP, Trivial File Transfer Protocol, to transfer configuration files. Therefore, if you want to configure Cisco routers, you have to make sure your workstation is set up as a TFTP server.

For UNIX Machines

Follow these steps to set up your workstation to support TFTP:

1. Become root (superuser).
2. Create the **/tftpboot** directory and give all users read/write permission to the directory. Type the following:

```
mkdir /tftpboot
chmod 777 /tftpboot
```

3. Make sure there is a **tftp** entry in the **/etc/services** directory. To search for the entry, type:

```
cd /etc
grep tftp services
```

You should see the following entry in the **/etc/services** file:

```
tftp          69/udp
```

If you don't see the **tftp** entry, type the entry (as it appears above) in the "Host specific functions" area near line 30.

4. In the **/etc/inetd.conf** file, find the following line and uncomment it by deleting the pound character (#) from the beginning of the line:

```
#tftp dgram udp...../tftpboot
```

Then make sure the line ends with the **-s /tftpboot** option.

5. Find the **inetd** process ID and reinitialize the process.
 - a. Type the following command to get the **inetd** process ID:

```
ps -aux | grep inetd
```

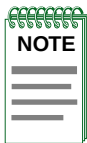
- b. Notice the process ID number—the first number in the line. Then type:

```
kill -1 <process_ID>
```

The **kill** command with the **-1** (minus one) option reinitializes the process.

6. Now that your workstation is set up as a TFTP server, make sure that the community string within the Cisco host configuration file (on the device itself) is set to read/write. To do this, check the snmp server line in the Cisco router host configuration file. It should say the following:

```
snmp-server community public RW
```



If you specify an access list with the above configuration command (**snmp-server community public RW**), you must include the IP address of each workstation that will be running ECM as an entry in that access list. For further information, refer to Cisco's reference manual, **Router Products Configuration and Reference**.

For NT Machines

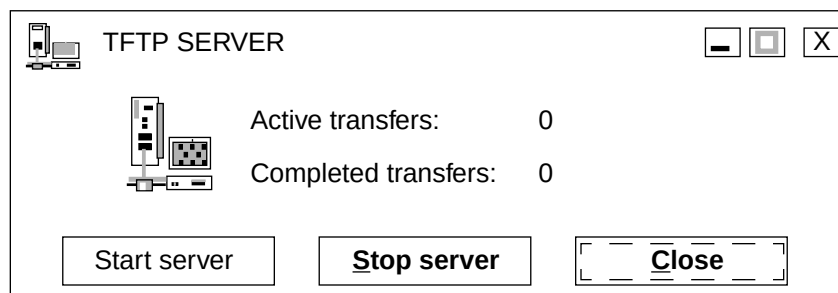
Follow these steps to set up your NT machine to support TFTP.

1. Go to the TFTPBOOT directory. It is a main directory on the drive you choose when you installed ECM. For example:

C:/TFTPBOOT

2. By double clicking on it, run the file TFTPSEVER.EXE

This starts the TFTP server and displays a dialog box similar to the following.



The Start server button will be grayed out since the TFTP server will be running.

3. You can click on the minimize  or the Close button.
4. You may want to configure the Startup parameters so that the TFTP server is started automatically when you reboot the NT machine. To do this, click on Startup and select Automatic.



Appendix B

ECM Resource File

*This appendix describes the parameter values in the Enterprise Configuration Manager resource file **Ecm**.*

In This Appendix

- [Resource File](#)
The file containing the parameters used by ECM. These parameters are divided into the following categories described in the next sections.
- [Timeout and Pathname Parameters](#)
Parameter names, descriptions, and default values
- [Operational Parameters](#)
Parameter names, descriptions, and default values
- [Display Parameters](#)
Parameter names, descriptions, and default values

Resource File

The Enterprise Configuration Manager resource file **Ecm** is located in your <SPECTRUM directory>/app-defaults directory.

Ecm contains the various parameters used by ECM. Although parameter values in the resource file are set at installation, you can edit the resource file at any time. The new parameter values take effect when you re-start ECM.

The resource file contains the following groups of parameters:

- Timeout and Pathname Parameters
- Operational Parameters
- Display Parameters

Timeout and Pathname Parameters

During a custom install, you can enter your own values for the Timeout and Pathname parameters. If you perform an auto install, however, the resource file will contain the default values listed below.

Ecm Parameter	Description & Default Value
DefaultTimeout	Mail Service timeout in milliseconds Default: 100000 milliseconds (100 seconds)
VnmConnectionTimeout	Handshake timeout interval for the creation of Sockets—used for communication by the Mail Service and its servers Default: 20 seconds
EcmPath	Path for locating ECM utilities and associated data file Default: <SPECTRUM directory>/ecm
EcmLogFile	Name of the background task logfile Default: <SPECTRUM directory>/ecm/ecmbg.log

Operational Parameters

You can enter your own values for the operational parameters during a custom install. If you perform an auto install, however, the resource file will contain the default values listed below.

You can also set these parameters in various ECM windows. However, these ECM settings only apply to the current ECM session. When you restart ECM, the system reads the parameter values from the resource file.

- The Preferences dialog box allows you to set the values of the **FindLandscapes**, **OtherDevicesLandscapes**, **AutoExpand**, **EcmSafeLoad**, **EcmStoreBeforeLoad**, and **EcmSaveOverwrites** parameters.
- The Save As dialog box allows you to define the **CreateLandscape** parameter.
- The Load Confirmation message box allows you to set the **EcmSafeLoad** and **EcmStoreBeforeLoad** parameters.

Ecm Parameter	Description & Default Value
FindLandscapes	Landscape(s) used for locating configurations and templates (Value can be a comma separated list) Default: 0x400000 or local landscape handle
CreateLandscape	Landscape to which configurations and templates are saved (Only a single value is allowed) Default: 0x400000 or local landscape handle
OtherDevicesLandscapes	Landscape(s) used for locating device models (Value can be a comma separated list) Default: 0x400000 or local landscape handle
EcmSafeLoad	Safe Load setting Default: OFF
AutoExpand	Setting determining whether preferred landscapes are automatically expanded in windows Default: ON
EcmStoreBeforeLoad	Specifies whether the device's configuration should be stored to the database before the Load operation. Default: ON
EcmSaveOverwrites	Specifies how the Save operation functions for templates/ configurations. Valid values: YES - overwrite existing; NO - create new. Default: NO
EcmShowSharedConfigs	Specifies which configurations to display first at startup: Shared or Device Specific. Valid values: YES - show shared; NO - show device specific. Default: YES
CaseSensitive	Specifies the default case-sensitivity for Searches and Filters. Valid values: 0 = case insensitive, 1 = case sensitive Default: 1
SearchDefault	Specifies whether Search or Filter is the default operation at startup. Valid values: 0 = filter default, 1 = search default Default: 1

Display Parameters

These parameters define the fonts and colors used in ECM windows. You can specify these parameter values only in the resource file

Ecm Parameter	Description & Default Value
BackgroundColor	Colored border in all windows Default: 208 (baby blue — ECM blue)
FrameBackgroundColor	Window background color in all windows Default: 251 (medium gray)
MenuColor	Menu background color in all windows Default: 251 (medium gray)
LabelColor	Foreground color for text in all windows Default: 45 (black)
SearchHighlightColor	Color used to indicate whether search or filter is active. Default: 170 (yellow).
OverviewSelectionColor	Color used to indicate selected entries in the Overview window. Default: 170 (yellow).
FontAliasFile	Specifies the file to search when a given font cannot be found. Default: /usr/data/Spectrum/spectrum.fonts
WindowTextColor	Foreground color for text in all windows Default: 245 (black)
MenuTextColor	Foreground color for text in all windows 245 (black)
DarkBackgroundColor	Highlight color and scroll bar trough color in all windows Default: 249 (dark gray)
SelectionColor	Color for toggle buttons when selected Default: 249 (dark gray)
LabelFont	Font used in labels and push buttons Default: -*-helvetica-medium-r-normal--*-120-75-75-p-*-iso8859-1

Ecm Parameter	Description & Default Value
ListFont	Font used in lists Default: -*-courier-medium-r-normal--*-120-75-75-m-*-iso8859-1
MenuFont	Font used in menus Default: -*-helvetica-medium-r-normal--*-140-75-75-p-*-iso8859-1
TextFont	Font used in text entry fields Default: -*-helvetica-medium-r-normal--*-140-75-75-p-*-iso8859-1
dragInitiatorProtocolStyle	Drag & Drop parameter, disabled because it causes problems Default: XmDRAG_NONE
dragReceiverProtocolStyle	Drag & Drop parameter, disabled because it causes problems Default: XmDRAG_NONE



When you modify the resource file, note the following:

- YES, TRUE, ON, 1 — are all equivalent.
- NO, FALSE, OFF, 0 — are all equivalent.



Appendix C

Running ECM from the Command Line

This appendix describes how to perform ECM operations from the command line. The appendix displays the commands in a modified man page format.

In This Appendix

- [*Using ECM Commands*](#)
Requirements for using ECM commands
- [*Invoking ECM*](#)
How to start ECM
- [*Capturing a Configuration from a Model*](#)
How to capture a configuration
- [*Loading a Configuration to One or More Models*](#)
How to load a configuration
- [*Verifying a Configuration to One or More Models*](#)
How to verify a configuration
- [*Importing Templates and Configurations*](#)
How to import a template and configuration
- [*Exporting Templates and Configurations*](#)
How to export a template and configuration
- [*Deleting ECM Models*](#)
How to delete an ECM model

Using ECM Commands

ECM commands require information such as model names and model type handles, which you retrieve through the Command Line Interface (CLI) commands. Therefore, unless you are an experienced CLI user, do not attempt to run ECM with the commands in this appendix.

To run ECM from the command line:

1. Make sure the SpectroSERVER is up and running.
2. Navigate to the directory where the ECM command is located. See the Location category under each command.
3. To check the syntax of a CLI command, go to the directory where the command is located and type the first word of the command. Or in any directory, type the complete pathname along with the command.

To see the syntax of an ECM command (for example, load, verify, or capture), in the <ECM directory>/bckgrnd> directory, use the following syntax:

```
ecmbg -f command
```

For example:

```
ecmbg -f capture
```

or

```
/usr/data/Spectrum/ecm/bckgrnd/ecmbg -f capture
```

4. Use CLI to find the input information required by the command.
5. Enter the command in the format described in this appendix or in the command line description. If commands require a data file, create a file with the information required. Use the following format for the file:

```
*vnmsocket: 0xbeef
*DefaultTimeout: 100000
*EcmPath: /usr/data/Spectrum/ecm
*EcmLogFile: /usr/data/Spectrum/ecm/log/ecmbg.log
*ModelHandles: 0x6801eb, 0x6801ae, 0x680029
*ConfigHandles:
*DeviceHandles: (used only with -ds argument)
```

Invoking ECM

Ecm -- Start Configuration Manager

Location: <ECM directory>

Syntax: Ecm \
 -vnm <SpectroSERVER host name> \
 -vnmsocket <VNM socket number> \
 -mh <device model handle>

Input: **-mh** Model handle of the device you are going to work with
 -vnm SpectroSERVER to which you are connecting
 -vnmsocket Socket number on the SpectroSERVER

Capturing a Configuration from a Model

ecmbg -f capture -- capture a configuration from a model

Location: <ECM directory>/bckgrnd

Syntax: ecmbg -f capture \
 -vnm <SpectroSERVER host name> \
 -clh <create landscape handle> \
 -mh <device model handle> \
 -file < data file name> \
 -ds (capture in device specific mode)
 -cname <ECM output configuration name>

Input: **-clh** Landscape handle of SpectroSERVER where configuration
 will be saved
 -cname Name of the captured configuration
 -ds Capture in device specific mode
 -file Data file containing the following parameters and their values:
 Vnmsocket, DefaultTimeout, EcmPath, EcmLogFile,
 DeviceHandles (device model handles), and
 ModelHandles (template model handle(s))
 -mh Model handle of the device you are going to work with
 -vnm SpectroSERVER to which you are connecting

Loading a Configuration to One or More Models

ecmbg -f load -- load a configuration to model(s)

Location: <ECM directory>/bckgrnd

Syntax: ecmbg -f load \
 -vnm <SpectroSERVER host name> \
 -file <data file name> \
 -ds (load in device specific mode)
 -sf ON|OFF \
 -as ON|OFF \
 -ch <ECM configuration model handle>

Input:	-as	Automatic Save setting, either ON or OFF
	-ch	Model handle of the ECM configuration
	-ds	Load device specific configuration
	-file	Data file containing the following parameters and their values: Vnmsocket, DefaultTimeout, EcmPath, EcmLogFile, ModelHandles (device model handle(s) or ConfigHandles (configuration model handle(s), used only with the -ds argument)◇◇
	-sf	Safe Load setting, either ON or OFF
	-vnm	SpectroSERVER to which you are connecting

Verifying a Configuration to One or More Models

ecmbg -f verify -- verify one or more models

Location: <ECM directory>/bckgrnd

Syntax: ecmbg -f verify \
 -vnm <SpectroSERVER host name> \
 -file <data file name> \
 -ds (verify in device specific mode)
 -ch <ECM configuration model handle>

Input:	-ch	Model handle of ECM configuration
	-ds	Verify device specific configuration
	-file	Data file containing the following parameters and their values: Vnmsocket, DefaultTimeout, EcmPath, EcmLogFile, ModelHandles (device model handle(s) or ConfigHandles (configuration model handle(s), used only with the -ds argument)◇◇
	-vnm	SpectroSERVER to which you are connecting

Importing Templates and Configurations

import -- import configurations and/or templates

Location: <ECM directory>/bckgrnd

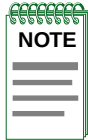
Syntax: import \

- vnm <SpectroSERVER host name> \
- port <VNM socket number> \
- [-clh <create landscape handle>] \
- file <data file name> \
- [-ecmpath <ECM directory path>] \
- [-time <VNM timeout>]

Input:	-file	The file created by export
	-port	VNM socket number
	-vnm	SpectroSERVER to which you are connecting
Options:	-ecmpath	Optional ECM directory path (Defaults to the ECM path specified in the resource file.)
	-clh	Optional landscape handle of SpectroSERVER where configuration will be saved (Defaults to the landscape handle specified in the resource file.)
	-time	Optional VNM timeout value (Minimum value is 5,000. Defaults to the value specified in the resource file.)

Exporting Templates and Configurations

export -- retrieve templates/configurations, print output to the screen



The **export** command directs output to your screen. Therefore, whenever you use the **export** command, be sure to redirect the output to a file. To do this, use the redirection symbol (>) and specify the destination filename. Later you can import configurations and templates from this file.

Location: <ECM directory>/bckgrnd

Syntax: **For specifying one ECM configuration model handle:**

```
export \  
    -vnm <SpectroSERVER host name> \  
    -port <VNM socket number> \  
    -ch <ECM configuration model handle> \  
    [-ecmpath <ECM directory path>] \  
    [-time <VNM timeout>]
```

For specifying one ECM template model handle:

```
export \  
    -vnm <SpectroSERVER host name> \  
    -port <VNM socket number> \  
    -th <ECM template model handle> \  
    [-ecmpath <ECM directory path>] \  
    [-time <VNM timeout>]
```

For specifying one ECM configuration name and model type handle:

```
export \  
    -vnm <SpectroSERVER host name> \  
    -elh <export landscape handle> \  
    -port <VNM socket number> \  
    -mth <model type handle> \  
    -cn <ECM configuration name> \  
    [-ecmpath <ECM directory path>] \  
    [-time <VNM timeout>]
```

For specifying one ECM configuration name and model type name:

```
export \  
    -vnm <SpectroSERVER host name> \  
    -elh <export landscape handle> \  
    -port <VNM socket number> \  
    -mtn <model type name> \  
    -cn <ECM configuration name> \  
    [-ecmpath <ECM directory path>] \  
    [-time <VNM timeout>]
```

For specifying one ECM template name and model type handle:

```
export \  
    -vnm <SpectroSERVER host name> \  
    -elh <export landscape handle> \  
    -port <VNM socket number> \  
    -mth <model type handle> \  
    -tn <ECM template name> \  
    [-ecmpath <ECM directory path>] \  
    [-time <VNM timeout>]
```

For specifying one ECM template name and model type name:

```
export \  
    -vnm <SpectroSERVER host name> \  
    -elh <export landscape handle> \  
    -port <VNM socket number> \  
    -mtn <model type name> \  
    -tn <ECM template name> \  
    [-ecmpath <ECM directory path>] \  
    [-time <VNM timeout>]
```

For specifying all ECM configuration models:

```
export \  
    -vnm <SpectroSERVER host name> \  
    -elh <export landscape handle> \  
    -port <VNM socket number> \  
    -ac \  
    [-ecmpath <ECM directory path>] \  
    [-time <VNM timeout>]
```

For specifying all ECM template models:

```
export \  
    -vnm <SpectroSERVER host name> \  
    -elh <export landscape handle> \  
    -port <VNM socket number> \  
    -at \  
    [-ecmpath <ECM directory path>] \  
    [-time <VNM timeout>]
```

For specifying all ECM models:

```
export \  
    -vnm <SpectroSERVER host name> \  
    -elh <export landscape handle> \  
    -port <VNM socket number> \  
    -a \  
    [-ecmpath <ECM directory path>] \  
    [-time <VNM timeout>]
```

Input:	-a	All templates and configurations (no value needed)
	-ac	All configurations (no value needed)
	-at	All templates (no value needed)
	-ch	ECM configuration model handle
	-cn	ECM configuration name
	-elh	Landscape handle of destination SpectroSERVER for export
	-mth	Model type handle
	-mtn	Model type name
	-port	VNM socket number
	-th	ECM template model handle
	-tn	ECM template name
	-vnm	SpectroSERVER to which you are connecting
Options:	-ecmpath	Optional ECM directory path (Defaults to the ECM path specified in the resource file.)
	-time	Optional VNM timeout value (Minimum value is 5,000. Defaults to the value specified in the resource file.)

Deleting ECM Models

`rm_ecm_models -- remove ECM models`

Location: <ECM directory>/deinstall
<SPECTRUM directory>/SS-Tools
(If only the ECM Server component is installed on the system.)

Syntax: `rm_ecm_models \`
 `-vnm <SpectroSERVER host name> \`
 `-port <VNM socket number> \`
 `[-time <VNM timeout>]`

Input: **-port** VNM socket number
 -vnm SpectroSERVER to which you are connecting

Options: **-time** Optional VNM timeout value
 (Minimum value is 5,000. Defaults to 100,00.)

Appendix D

Customizing An IP Address for Cisco Router Operations

This appendix describes how to customize an IP address for CISCO router operations.

In This Appendix

- [Why Customize an IP Address for ECM](#)
Reason for customizing an IP address
- [How Customize an IP Address for ECM](#)
Procedure for customizing an IP address

Why Customize an IP Address for ECM

If you have more than one IP address for the workstation that ECM is running on and you want to capture, load, or verify Cisco router host configurations, you can customize which IP address you would like ECM to use.



This only affects the host configuration **Capture** and **Load** functions for ECM. It does not affect any other ECM functions or any functions outside of ECM.

How Customize an IP Address for ECM

To customize which IP address you would like ECM to use, do the following:

1. Using a text editor, create a file in the ECM directory and name it CUSTOM.
2. Place the following line, indicating your desired IP address in the file:

```
TFTP_SERVER_ADDR 111.222.333.444
```

For example:

```
TFTP_SERVER_ADDR 132.177.110.110
```



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